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Checklist of the Vascular Plants of Powdermill Nature Reserve, Westmoreland County, Pennsylvania

Frederick H. Utech

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CARNEGIE MUSEUM OF NATURAL HISTORY
SPECIAL PUBLICATION NO. 20

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Westmoreland County,

Pennsylvania

FREDERICK H. UTECH
Curator, Section of Botany

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Dedicated to my daughter, Rebecca Jane,
and all ageless children who need a flowered forest
full of wonderment
to walk knowingly and comprehend consciously.

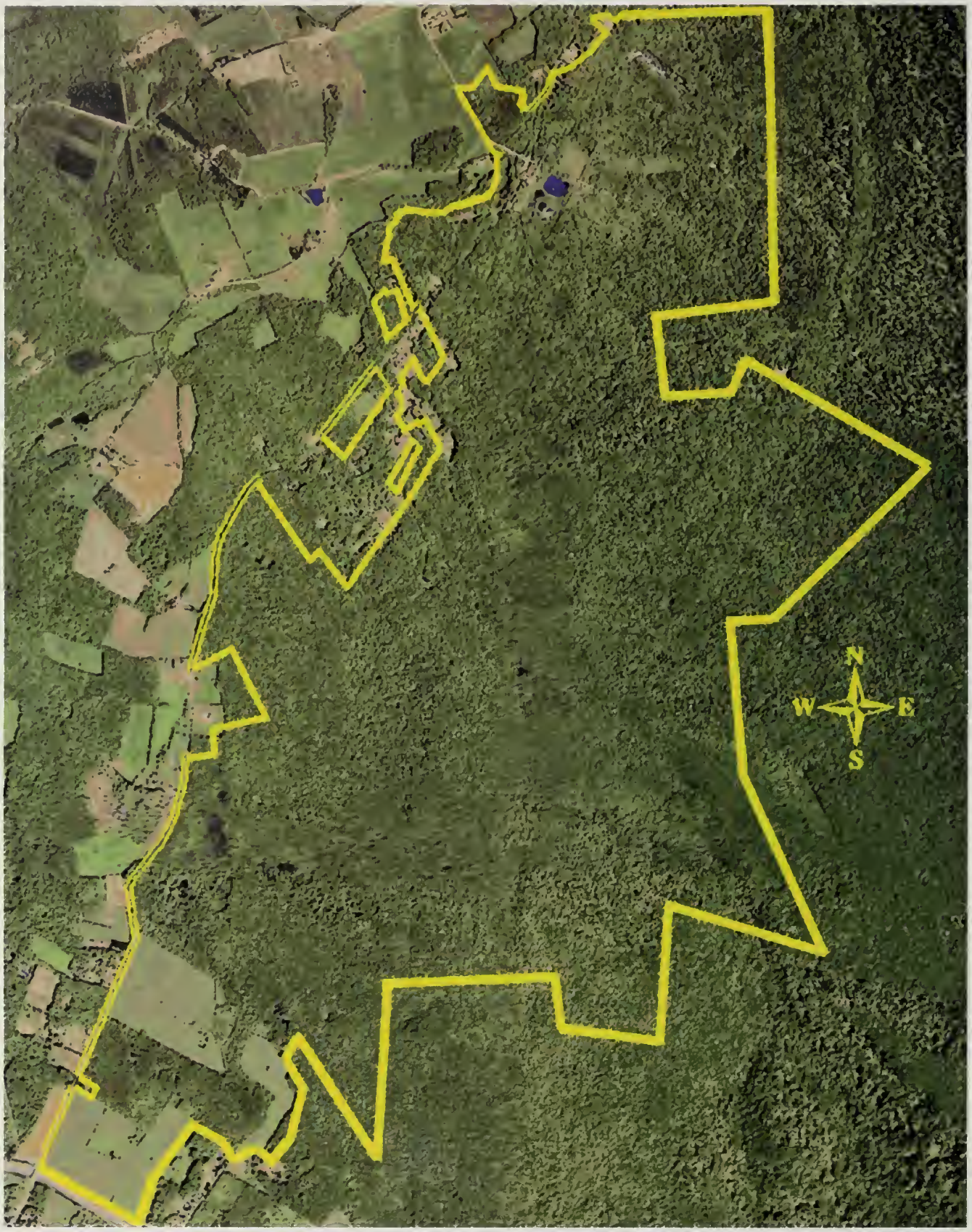
Abstract

The following checklist documents the vascular plants known to occur at Carnegie Museum of Natural History's biological field station, Powdermill Nature Reserve (PNR), which is located 60 miles (96 kilometers) southeast of Pittsburgh in the Allegheny Mountains. A general historical and ecological discussion of PNR is provided as background for the checklist, including a 24-year summary of its climatic data. Habitat distribution of the Reserve's flora is reviewed, and the distinctive flowering periods of its spring and autumn floras as well as the naturalization of non-native species are discussed.

When the PNR flora is compared with that of Pennsylvania at large, parallel patterns of distribution are seen in their major taxonomic divisions, largest plant families, growth form classes, and native versus non-native species ratios. The ranking of the ten largest vascular plant families at PNR is similar to that for Pennsylvania. At PNR, these ten families include 48.1% of the flora, while in Pennsylvania they account for 50.8%. A total of 129 vascular plant families is known from the Reserve, 179 from Pennsylvania. Analysis indicates that 34.9% of the PNR's vascular flora is non-native, compared with 37.4% for Pennsylvania. Europe and eastern Asia are the major centers of origin for these plant introductions.

The presently known vascular flora at PNR comprises 851 species in 456 genera and 129 families. This includes 245 species discovered since L. K. Henry's (1972) initial report for the Reserve. During the past 43 years, 17 collectors have added a total of 1,225 collections to the flora's documentation. Four of these collectors, Botany Curators L. K. Henry and F. H. Utech and PNR Birdbanders R. C. Leberman and R. S. Mulvihill, account for 93.8% of these collections. For each species, the checklist provides: family association; scientific name with author citation; common name(s); collecting site(s); collector(s); date(s); habitat note; and area of origin if non-native.

Key words: flora; vascular plants; Westmoreland County, Pennsylvania; Powdermill Nature Reserve



Infra-red aerial photograph of Powdermill Nature Reserve from USGS National Aerial Photography Program, flight 142-117 on June 6, 1989. Image thematically enhanced by Ron Lutz II, Exhibit Design and Production, CMNH.

Introduction

Powdermill Nature Reserve (PNR) is the biological field station of Carnegie Museum of Natural History (CMNH) and comprises some 2,030.5 acres (812 hectares) in the Ligonier Valley, Cook Township, Westmoreland County, Pennsylvania. PNR is approximately 60 miles (96 kilometers) southeast of Pittsburgh and is bordered by the Pennsylvania Turnpike (Interstate Highway 70–76) on the south, Pennsylvania Highway 381 on the west, and Forbes State Forest on the east. Elevation varies from 1,300 feet (396 meters) near the headquarters area in the valley to roughly 2,100 feet (640 meters) along the upper, western slopes of Laurel Hill Ridge. In addition to Powdermill Run, Phoebe and Laurel Runs drain westward from this slope into the Loyalhanna Creek watershed (Newport, 1973). Most of the three miles of Powdermill Run are within the Reserve (Fig. 1). Powdermill, named after a gunpowder mill that exploded in 1840 killing two people near the Run's headwaters (Sharp, 1969), is the contemporary spelling for Powder Mill.

The Reserve has been assembled from various gifts and land purchases starting in 1956 (Fig. 2; Table 1). The initial gift of 852 acres (341 hectares) creating the Reserve came through the generosity of the neighboring Richard King Mellon and Alan Magee Scaife families. Previously the area had been a mixture of small farms and mountainous woodlots. Depending on terrain, the Johnston, Ankney, Smith, Friedline, and Shawley families used their homestead lands differently. Some farmed, some lumbered (Kline, 1973), and some dug surface coal (Sharp and Thomas, 1966). Weaver Mill, a gristmill along Powdermill Run opposite the present headquarters area, was operated for five generations by the Weaver family. This area, previously incorporated as the village of Crisp, had a school, general store, and post office (Orndorff, 1969; Kay and Smith, 1976). All of these are now gone, but many of the local names remain.

The previously distinct tracts now consolidated into the Reserve constitute geographic and historical subdivisions that provide a natural and functional gazetteer. These tracts, frequently with names honoring past residents, have been extremely useful for specifying collection sites. The Reserve's tract-by-tract growth during the past four decades is shown in Figure 2. The tract names coded to the map, acquisition dates, and acreage are summarized in Table 1.

Besides Powdermill Nature Reserve, Carnegie Museum of Natural History owns two disjunct tracts in Westmoreland County that are part of the overall reserve system. Furnace Woods Sanctuary, located 1 mile (1.6 kilometers) east of Laughlintown with 132.9 acres (53.2 hectares), was acquired in 1969 and Buffalo Nut Sanctuary, located 3 miles (4.8 kilometers) northwest of Stahlstown with 52.9 acres (21.2 hectares), was acquired in 1971. These two areas are not included in this checklist.

Reserve management has always fostered preservation, education, and research on biodiversity by providing for a wide array of habitats to support a diverse number of organisms. The Reserve is divided into three broad management zones: (1) the headquarters area, with support services, cabins, and labs; (2) the experimental area, with study plots and areas for landscape manipulation; and (3) the sanctuary area, which covers most of the Reserve and with minimal management has been left to natural processes. These management zones cut across the various tracts.

Environmental Context

Geology

Powdermill Nature Reserve is located along the eastern edge of the Allegheny Mountain Section of the Appalachian Plateau. The Reserve's eastern slopes are part of the Laurel Hill Syncline. Interestingly, this syncline and the parallel Chestnut Ridge Syncline just to the west are not part of the Appalachian Ridge and Valley System, but are tectonic wave flexures along the Plateau's margin resulting from plate collision during the Permian geological period (Beck et al., 1975; Wagner et al., 1975*a*, 1975*b*; Cuff et al., 1989).

The oldest rocks on Laurel Hill Ridge are from the Devonian Catskill Formation. The remaining strata are Mississippian and Pennsylvanian layers that contain coal. Limited exposures of Loyalhanna limestone are also noteworthy. Differential erosion and mass-wasting of the ridges have determined the area's topographic features as well as localized soil types. The rocky exposures along Powdermill Run provide viewers a slice of time when the

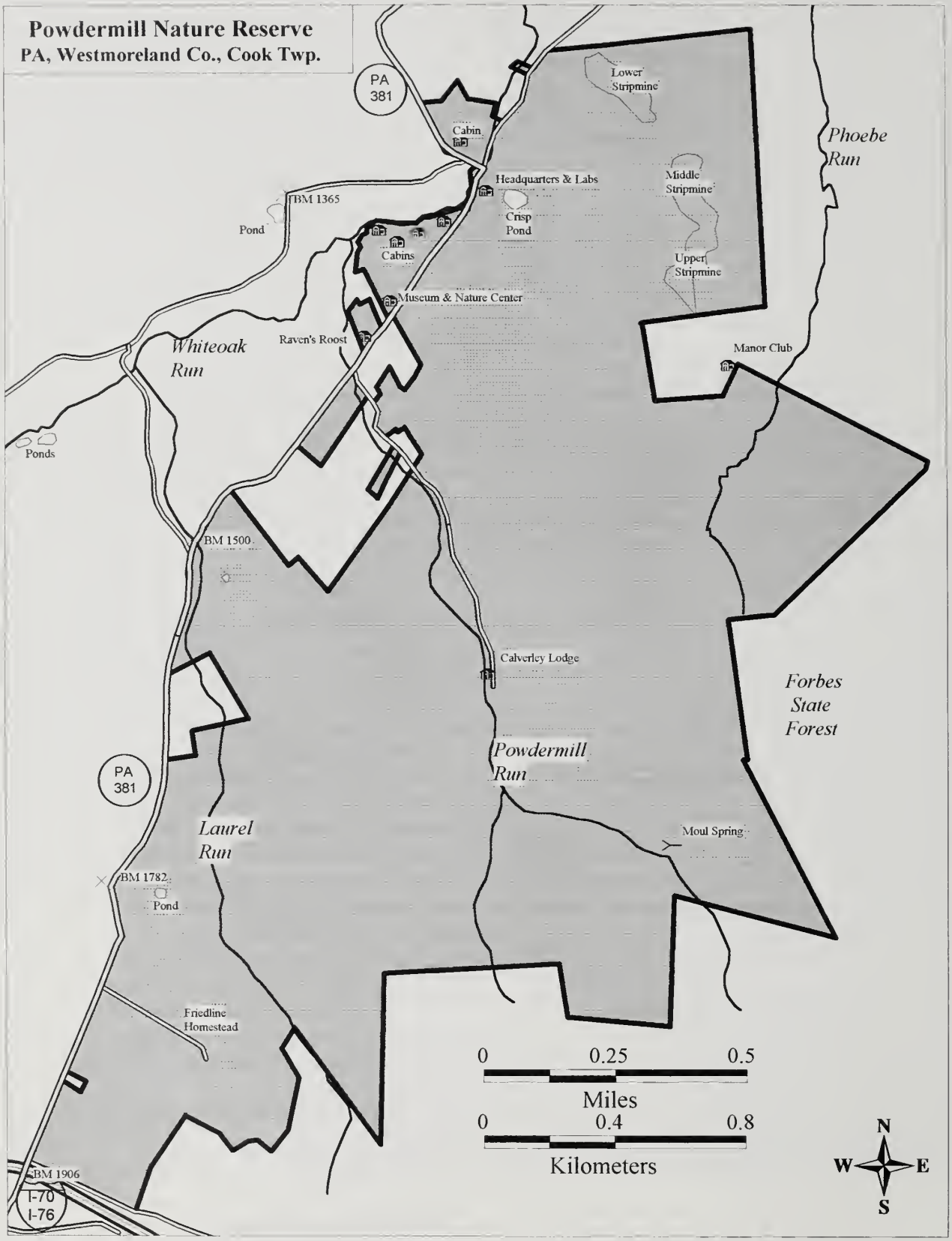


Fig. 1.—Generalized map of Powdermill Nature Reserve showing its location in the Laurel Highlands of Westmoreland County, Pennsylvania.

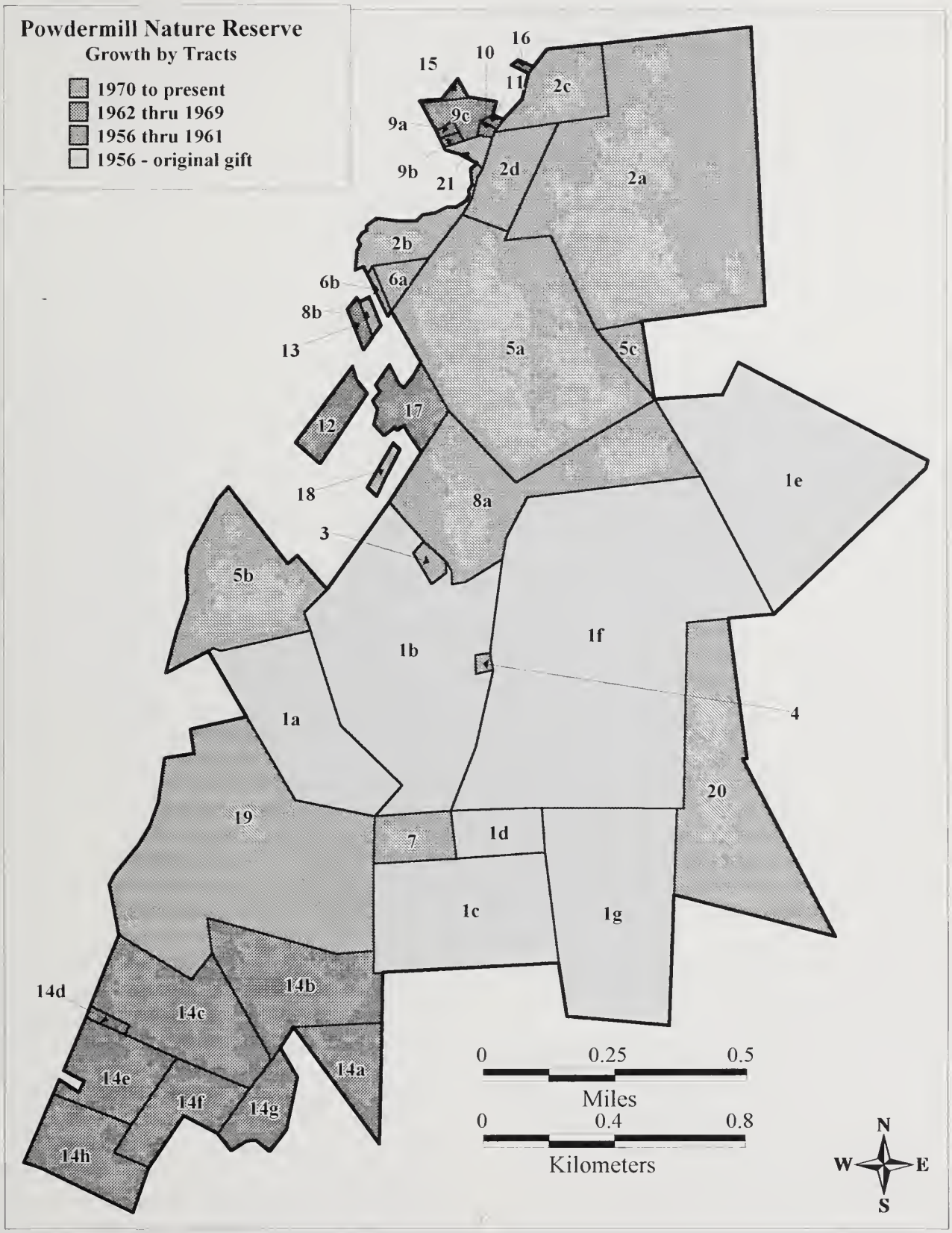


Fig. 2.—Growth of Powdermill Nature Reserve during the past four decades. For details on numbered tracts, see Table 1.

Table 1.—*Chronological growth of Powdermill Nature Reserve during the last four decades. (See Figure 2.)*

Map code	Tract name	Year	Size (acres)
1a	Baker	1956	(Initial gift)
1b	Coleman	1956	(Initial gift)
1c	Weaver	1956	(Initial gift)
1d	Phillippi	1956	(Initial gift)
1e	Anderson	1956	(Initial gift)
1f	Byers	1956	(Initial gift)
1g	Moul	1956	(Initial gift)
(1a–1g)	Initial Gift Total		852.00
2a	Johnston #1	1956	239.25
2b	Johnston #2	1956	19.14
2c	Johnston #4	1956	26.19
2d	Fiorina #3	1956	24.31
3	Kuhn & Mellinger	1957	3.08
4	Calverley	1958	1.00
5a	Hoyman	1959	162.50
5b	Byers #1	1959	56.30
5c	Byers #6	1959	7.23
6a	Cooper	1960	6.13
6b	Cooper	1960	1.33
7	Hertzler	1961	17.00
8a	Marshall, Betz & Betz	1961	84.37
8b	Marshall	1961	1.68
9a	Lewis & Lewis	1963	1.00
9b	Lewis & Fannibelle	1963	8.40
9c	Lewis & Lewis	1963	1.00
10	Dudley & Bessie	1964	1.00
11	Lewis	1965	1.00
12	Shawley & Shawley	1967	11.40
13	Lewis	1968	2.73
14	Friedline & Friedlinr	1968	240.41
15	Baum & Baum	1968	1.40
16	Drury	1969	0.66
17	Tompos	1969	13.94
18	Geiger	1971	2.06
19	Patchell	1982	180.55
20	Wilkins	1983	60.00
21	Fiorina #4	1987	3.50
Summary		(1956–1998)	2,030.56

Permian equator passed nearby and ancient seas now frozen as sandstone and limestone and swamps now found as coal covered the area.

The youngest consolidated rocks found today at Powdermill Nature Reserve are from the Glenshaw Formation (Pcg, Fig. 3). This formation belongs to the Conemaugh Group (Pc) of the Pennsylvanian System (Table 2). During Glenshaw deposition alternating beds of sandstone, shale, limestone, clay, and coal were laid down. Most of these sediments are marine in origin.

The parent materials of the Allegheny Group are the commonest bedrock type at the Reserve with 84.8% coverage (Pa, Fig. 3). This group, also of Pennsylvanian age (Table 2), is highly variable in composition with beds of sandstone varying in color from gray to iron-stained brown. The sandstone in the upper part tends to be fine to medium bedded. Whereas, those in the lower part are mostly coarse grained and locally massive with conglomerate lenses. The group is also composed of gray and greenish gray shale and siltstone. Several minable coal seams can be found in this group (Shaffner, 1963) including the historically economic seams of the Clarion, Lower and Upper Kittanning, and Lower and Upper Freeport. The Reserve's three abandoned strip-mines

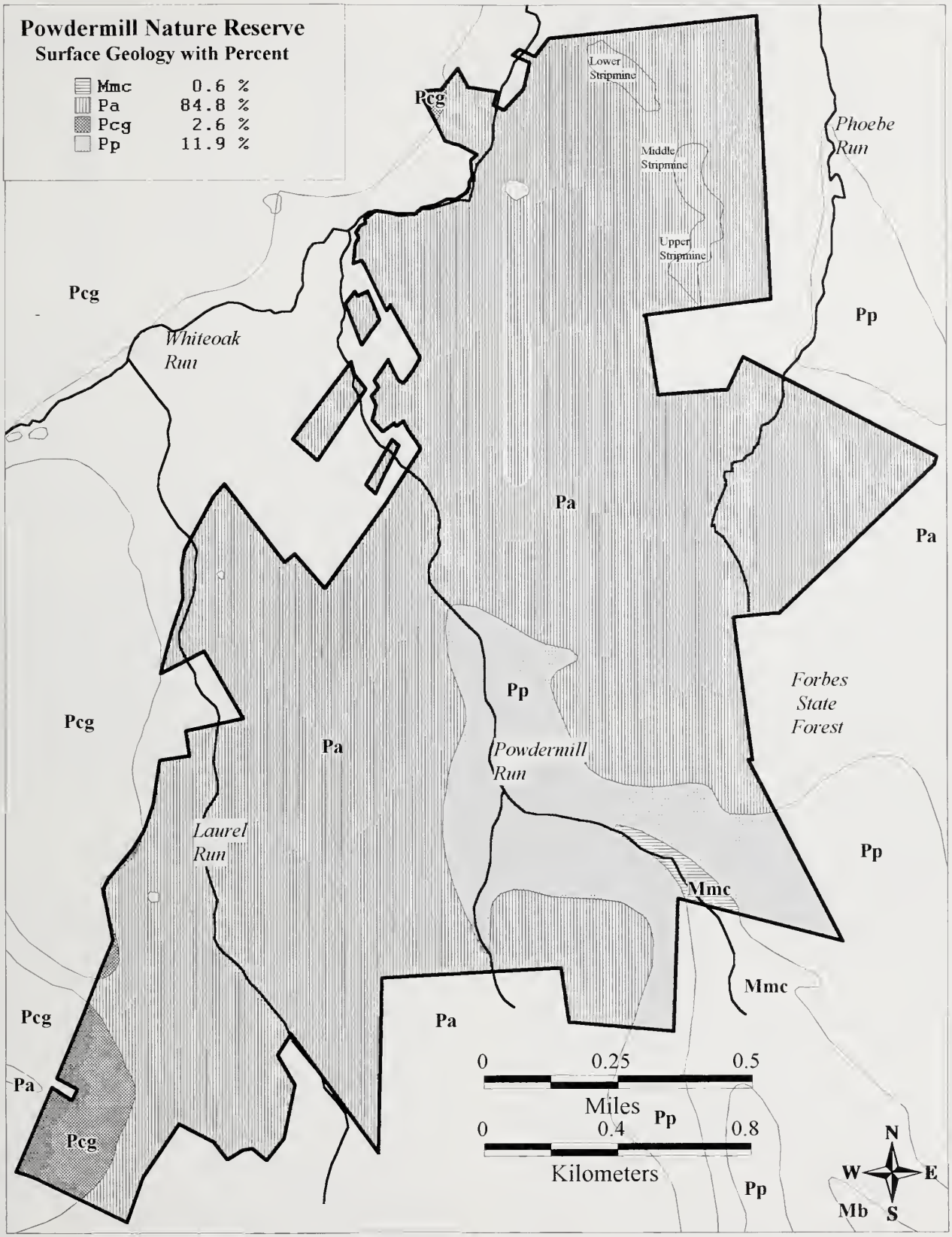


Fig. 3.—Surface geology of Powdermill Nature Reserve based on digitized versions of Pennsylvania Geological Survey (Wagner et al., 1975*a*) and Reserve property boundaries; see Table 2.

Table 2.—*Surface geology at Powdermill Nature Reserve. (See Figure 3.)*

System (Age)	Group	Formation	Map code	Area at PNR (acres)[a]	Percent at PNR (%)[a]
Upper Pennsylvanian	Conemaugh (Pc)	Glenshaw (Pcg)	Pcg	53.3	2.6
Middle Pennsylvanian	Allegheny (Pa)		Pa	1,722.4	84.8
Lower Pennsylvanian	Pottsville (Pp)		Pp	242.1	11.9
Upper Mississippian	Mauch Chunk (Mmc)		Mmc	12.7	0.6
Totals				2,030.5	100.0

[a] Based on digitized versions of Pennsylvania Geological Survey (Wagner et al., 1975*a*) and Powdermill Nature Reserve property boundaries.

have been mapped to this group for historic purposes (Figs. 1, 3).

The underlying Pottsville Group (Pp, Fig. 3) occurs along the upper stretches of Powdermill Run at the Reserve and marks the beginning of the Pennsylvanian System (Table 2). This group is composed of massive, irregularly bedded sandstone, which varies from gray to white in color. These are fine to coarse grained and may be conglomerated locally.

The Mauch Chuck Formation (Mmc, Fig. 3) which occurs further up Powdermill Run is part of the upper Mississippian System (Table 2). This formation consists of a variety of rock types ranging from red shales and siltstones with minor amounts of limestone. The oldest part of the formation is predominately limestone and calcareous shales and sandstones.

The Loyalhanna Formation with its characteristic limestone underlies the Mauch Chuck Formation. Localized exposures, too small for inclusion on the map (Fig. 3), are known from the Reserve in the upper headwater of Powdermill Run. The Loyalhanna Formation is described as a siliceous limestone with a quartz content of 50% or more. Locally it is called "blue stone." With quartz as the dominant mineral, this rock type is quite resistant to erosion and is characteristic of the ridges above the Reserve and higher elevations throughout the Laurel Highlands.

Several springs and seeps dot PNR. Moul Spring, near the headwaters of Powdermill Run on Laurel Hill Ridge, is the best known. To minimize run-off and increase "still-water habitats" in the headquarters area, a series of drainage pools and ponds was established between 1961 and 1974 (Netting, 1978). Crisp Pond is the largest of these holding reservoirs.

Historic Coal Mining at PNR.—Metallurgical grade coal in seams 40–48 inches (100–120 centimeters) thick lies near the surface at the Reserve. These seams can be seen readily in natural cuts along Powdermill Run. During the early part of this century, coal was dug for local use on the Johnston farm (tract). In the fall of 1946, coal stripping was begun commercially in three areas on this tract, but was stopped in the spring of 1947 by a court injunction that prohibited further pollution of Powdermill Run (Orndorff, 1969). Presently these tracts are referred to as the Upper, Middle, and Lower Strip-mine areas, respectively (Figs. 1, 3).

Between the 1920s and 1950s, surface coal was also removed from a 600-foot "drift" mine on the Friedline farm (tract). This coal from the Lower Kittanning seam was used locally. However, the seam's exposure in the headwaters of Laurel Run subsequently led to that stream's pollution. Demonstration sedimentation ponds for public access with associated wetlands are now in place in the headwaters as a remedial action (Gangewere, 1998).

Soils

The majority of the soils at Powdermill Nature Reserve are nonglaciated, upland, forest soils. They are end-products formed by climate acting on vegetation and parent bedrock materials that have weathered in place. A comparison of the surface geology map (Fig. 3) to the soils map (Fig. 4) shows the general correlation between the surface geologic formation as parent material and the resultant soil. The Reserve's soil types are intimately related to slope and the erosional dissection of Laurel Hill Ridge by the various runs and streams. This is particularly evident along the slopes of Powdermill and Laurel Runs. Surface stones are present everywhere. Most of the Reserve's soils are acidic, generally in the pH range of 4.0–5.5. Soil details and their various classifications are available in the County's Soil Survey (Taylor et al., 1965).

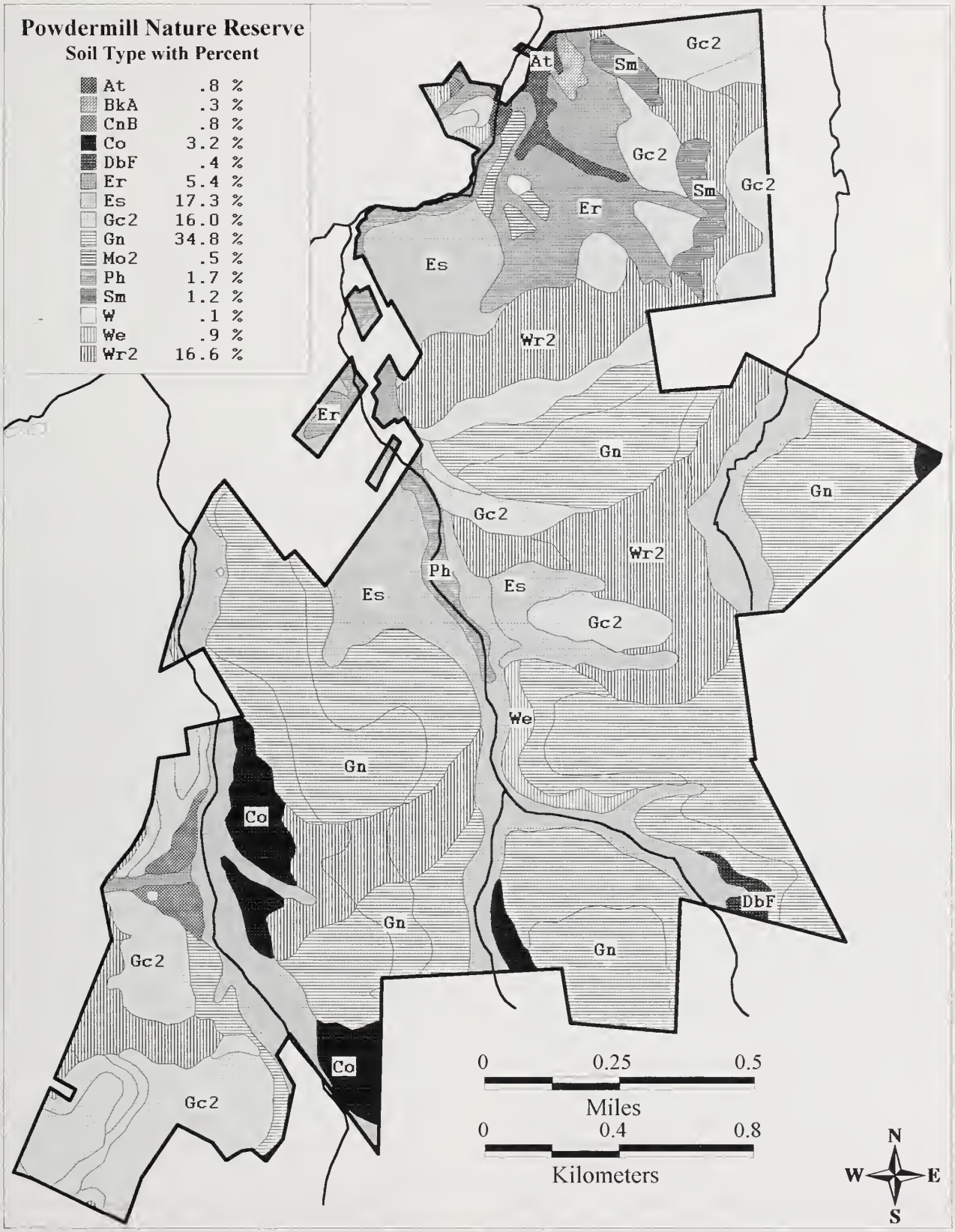


Fig. 4.—Soil types of Powdermill Nature Reserve based on digitized versions of Westmoreland County Soil Survey (Taylor et al., 1965) and Reserve property boundaries; see Table 3.

Table 3.—*Physical characteristics of soil types at Powdermill Nature Reserve. (See Figure 4.)*

Soil series	Map code	Origin–Parent material	Formation–Parent material	Soil texture	Area at PNR (acres)[a]	Percent at PNR (%)[a]
Atkins	At	Alluvial	Alluvium	Silt loam	16.2	0.8
Brinkerton	BkA				6.1	0.3
Cavode	CnB	Residual	Allegheny, Conemaugh	Silt loam	16.2	0.8
Cavode	Co	Residual	Allegheny, Pottsville	Very stony silt loam	65.0	3.2
Dekalb	DbF	Residual	Allegheny, Pottsville	Very stony loam	8.1	0.4
Ernest	Er	Colluvial	Mauch Chuck	Silt loam	109.6	5.4
Ernest	Es	Colluvial	Allegheny, Conemaugh	Silt loam	351.3	17.3
Gilpin	Gc2	Residual	Allegheny, Pottsville	Silt loam	324.9	16.0
Gilpin	Gn	Residual	Allegheny, Conemaugh	Silt loam	706.6	34.8
Monongahela	Mo2	Alluvial	Alluvium	Silt loam	10.1	0.5
Philo	Ph	Alluvial	Alluvium	Silt loam	34.5	1.7
Stripmine	Sm	Mixture	Mixture	Various	24.4	1.2
Water	W	(Ponds)			2.0	0.1
Weikert	We				18.3	0.9
Wharton	Wr2	Residual	Allegheny, Conemaugh	Silt loam	337.1	16.6
Totals					2,030.5	100.0

[a] Based on digitized versions of Westmoreland County Soil Survey (Taylor et al., 1965) and Powdermill Nature Reserve property boundaries.

The soil series is the basic unit of classification mapped for the Reserve (Fig. 4). The soils of each series have a characteristic texture, origin, and chemistry. Based on percent slope, a given soil series may be further subdivided. These smaller units are mapped within the named series (Fig. 4), although labeling is only to the soil series because of the map's size. For example, the Gilpin soil series (Gn, Fig. 4; Table 3) which is the commonest at the Reserve with 34.8% coverage has three subtypes: GnB with 0–12% slopes, GnD with 12–30% slopes, and GnF with 30–80% slopes.

Three soil-forming processes can be identified at the Reserve: residual (occurring in place), alluvial (occurring with the aid of moving water), and colluvial (occurring with the aid of gravity). Three residual soil series dominate the coverage at the Reserve: Gilpin (Gn and Gc2, collectively at 54.8%) and Wharton (Wr2 at 16.6%) (Fig. 4; Taylor et al., 1965). These soil series are derived from Pennsylvanian-aged Allegheny Conemaugh and Pottsville formations respectively (Table 3). Each soil has the characteristics of its underlying bedrock. All of these soils are relatively acidic due to the abundance of acid siltstones, sandstones, and clay shales and the relative lack of carbonates. A fourth, and minor, residual soil is the thin, rocky, ridge soils of the Dekalb series (DbF at 0.4% coverage; Fig. 4, Table 3). These soils are derived from acid sandstone which is very resistant to weathering (Taylor et al., 1965).

Along the floodplains and banks of Powdermill and Laurel Runs, stream-deposited, alluvial soils of the Atkins (At at 0.8%), Monongahela (Mo2 at 0.5%), and Philo (Ph at 1.7%) soil series (Taylor et al., 1965) form a repeating soil pattern or association due to the mixing of silt, sand, and gravel (Fig. 4; Table 3). There are also areas along Powdermill Run that have colluvial soils. Where mass-wasting and gravity have moved boulders and rocks from the upper slopes and ridges, atypical colluvial soils have accumulated in localized areas downslope. The Ernest series, both Er and Es collectively, are colluvial with 22.7% coverage (Fig. 4; Table 3).

The areas around the Reserve's old strip mines lack a true soil. There the surface materials are an unstructured mixture of various types of bedrock, soils, and waste coal. This area occupies a low 1.2% of the Reserve (Sm, Fig. 4). Past farming utilizing various plow depths as well as logging have altered the upper layers of the typical forest soil profile as well as the ensuing erosion cycle.

Climate

As an official National Weather Service station, Powdermill Nature Reserve has a standard instrument shelter located in the Headquarters area for recording climatic data. The Service lists the station as "3 miles SSW of

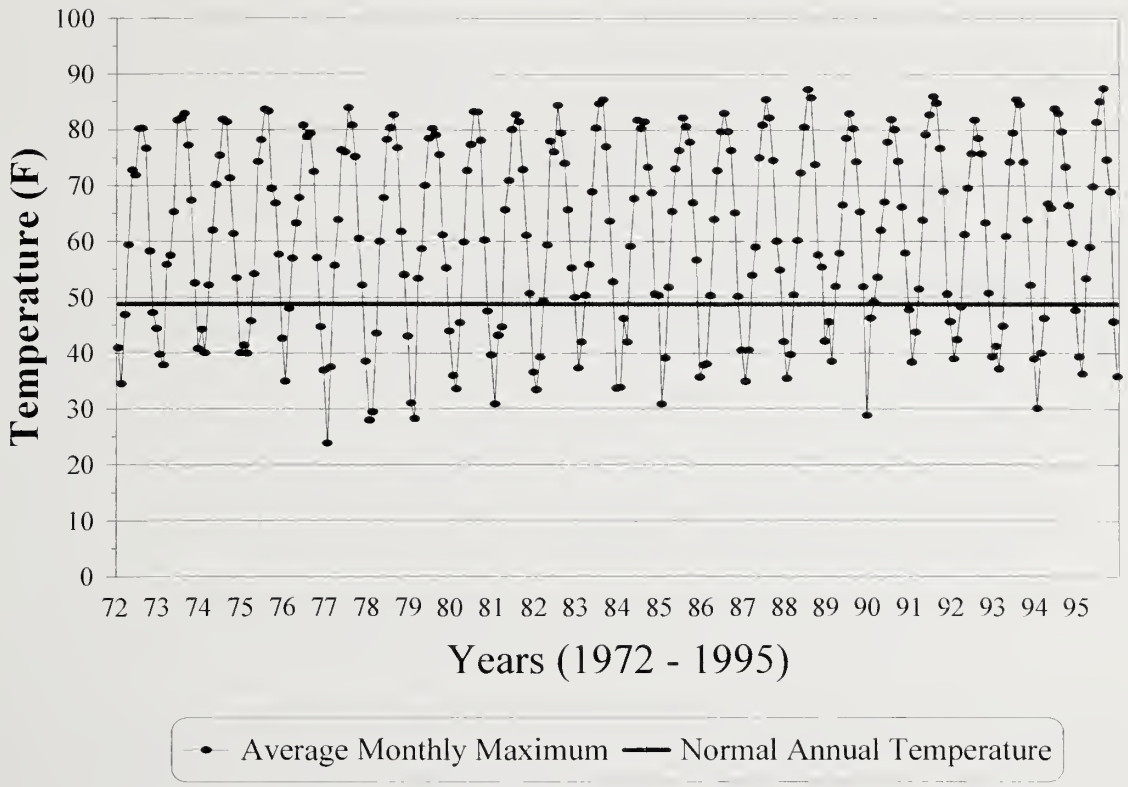


Fig. 5.—Graph showing the cyclical march of average montly maximum temperatures between January 1972 and December 1995 with each dot representing a month's average daily high temperatures. For comparison the normal annual temperature of 48.8°F (9.3°C) is plotted.

Rector" at latitude 90°10′N, longitude of 79°16′W, and an elevation of 1,339 feet (408 meters).

Starting in mid-1971, continuous, standard weather observations, including daily maximum and minimum temperatures, precipitation, and snowfall, have been recorded. The simple recording of daily maximum (high) and minimum (low) temperatures over a long period of time and across numerous stations is the ultimate basis for our understanding and predictability of macroclimate. These measurements are summarized here for the first time.

Climatic Data.—The cyclical march of the mean monthly maximum and minimum temperatures over the past 24 years is shown in Figures 5 and 6. Each month is represented by two dots; one for the maximum (high) temperature average (Fig. 5) and one for the minimum (low) temperature average (Fig. 6). A line representing the overall annual normal temperature of 48.8°F (9.3°C) is plotted on both graphs for ease in direct comparison. During this same time period, the overall annual mean maximum temperature was 61.1°F (16.2°C) and the overall annual mean minimum temperature, 36.5°F (2.5°C). The greatest temperature variation occurs in the winter months as shown in the lower portions of both the maximum and minimum plots. That 1977, 1978, and 1990 were cool years can be seen from the paired figures.

A standardized way of showing the probable monthly temperatures during an idealized year is to plot their various extreme and average temperatures. In Figure 7, the following temperature curves are shown for each month: the normal monthly temperature, the average maximum monthly temperature, the average minimum monthly temperature as well as the one-time, monthly extremes in maximum and minimum temperatures. The resulting smoothness of each curve is due to the averaging of averages. These temperatures are based on daily observations throughout the past 24 years, that is, January 1972 through December 1995.

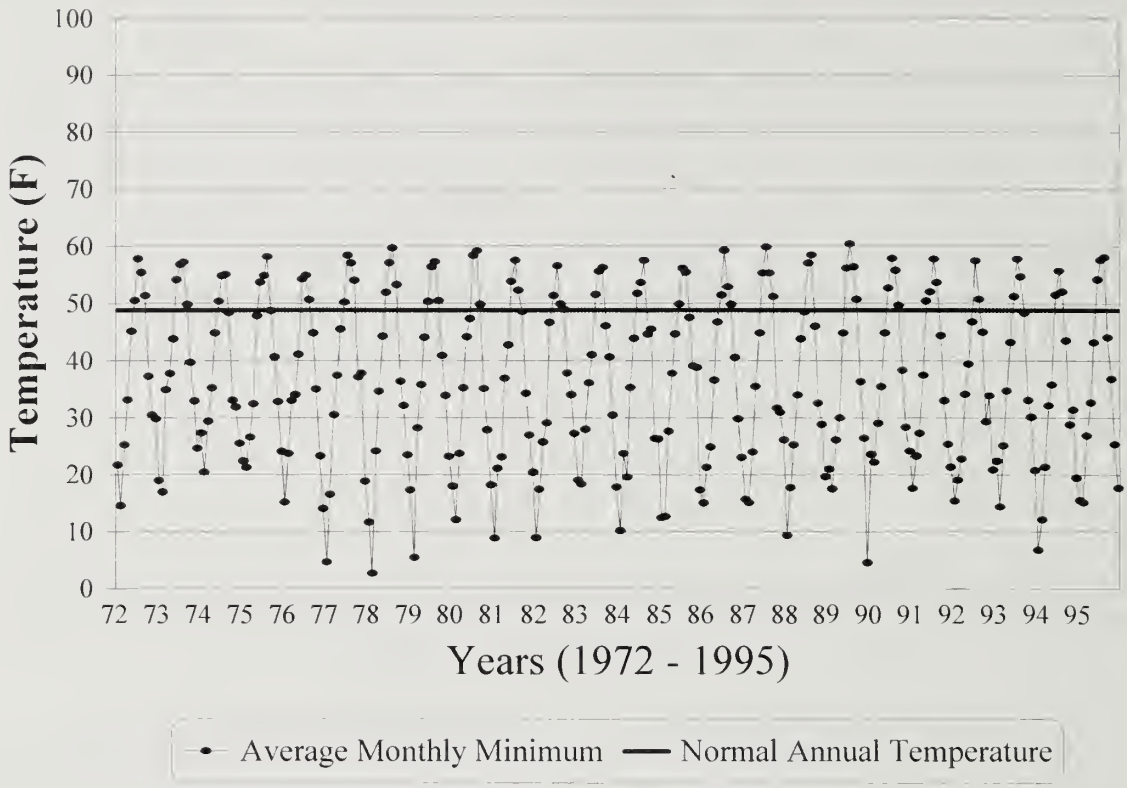


Fig. 6.—Graph showing the cyclical march of average monthly minimum temperatures between January 1972 and December 1995 with each dot representing a month's average daily low temperatures. For comparison the normal annual temperature of 48.8°F (9.3°C) is plotted.

The occurrence of record-setting extremes on any given day can be very important in initiating or terminating biological events. The hottest temperature ever recorded at the Reserve was 101°F (38.3°C) on 17 July 1988, and the coldest, −33°F (−36.1°C) on 21 January 1994. Freezing temperatures have been recorded at least once for each month during the past 24 years. This includes the 5 July 1979 reading of 32°F (0°C) and the 29 August 1982 reading of 31°F (−0.6°C). These temperatures were recorded near the Headquarters area, not on the colder, exposed ridges.

The hottest and coldest temperatures for each month during the past 24 years establish extremes for upper and lower temperature variations. When these extreme monthly records are plotted with the normal monthly temperatures, a wide temperature band or zone is produced (Fig. 7). These extreme temperatures far exceed standard deviations about the monthly means.

The number of days with frost per year, or conversely, frost-free days, can be determined from the daily minimum temperatures. This measure relates directly to duration of ground snow retention and length of the growing season. The average number of frost days at the Reserve was 150.5 days per year, or 214.5 frost-free days per year. The number of days with frost has varied from 130 in 1973 to 185 in 1994.

Yearly snowfall at Powdermill Nature Reserve is variable with an annual normal of 53.7 inches (164 centimeters) and a range from 29.3 inches (89 centimeters) in 1990 to the record high 92.1 inches (281 centimeters) in 1994. January has consistently been the snowiest month receiving an average of 14.7 inches (49 centimeters) (Fig. 8). The largest monthly snowfall occurred in January 1978 when 48.0 inches (122 centimeters) fell, while the single day record is 3 March 1994, when 26.0 inches (66 centimeters) fell. Many near-record snowstorms have occurred in March and early April as the moisture supply increases with the warming air of spring.

Annual precipitation at Powdermill Nature Reserve, including the volumetric equivalent of melted snow, ice

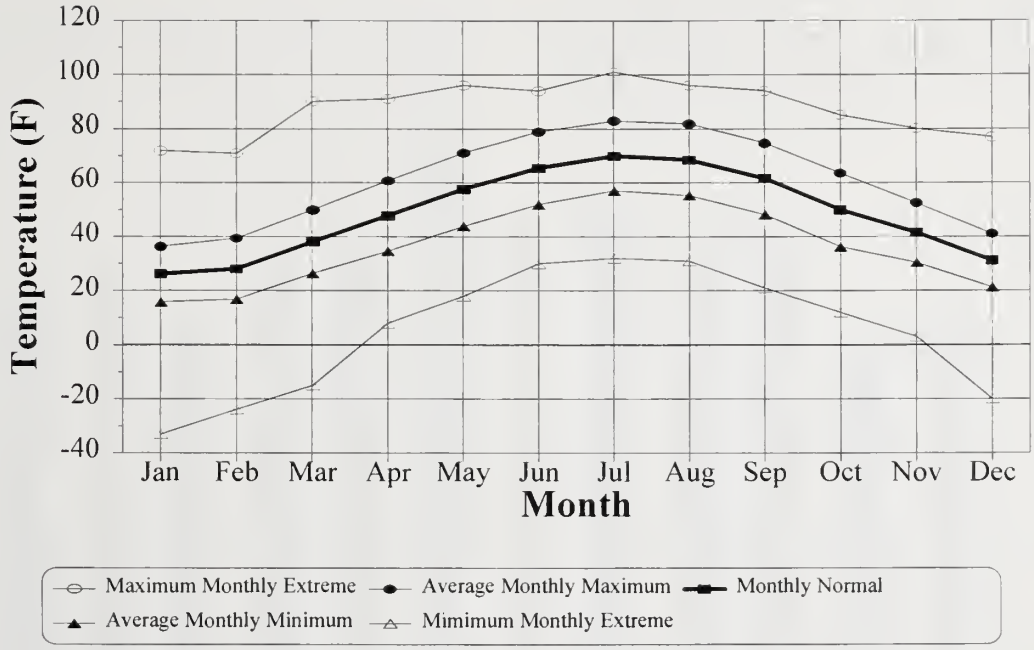


Fig. 7.—Five different temperatures are plotted for each month based on average and extreme temperatures experienced at PNR between January 1972 and December 1995. They are from top to bottom: maximum monthly extreme (or hottest ever for that month), average monthly maximum, monthly normal, average monthly minimum, and minimum monthly extreme (or coldest ever for that month).

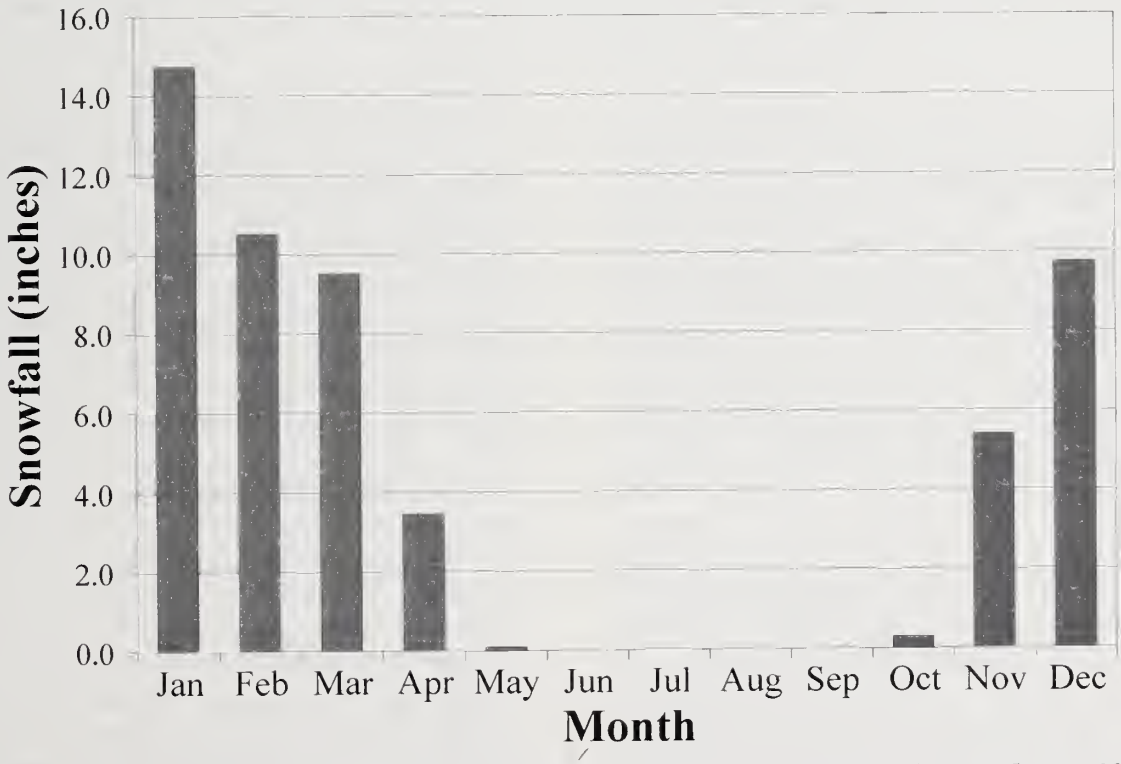


Fig. 8.—Bar graph showing the average amounts of monthly snowfall at PNR as recorded between January 1972 and December 1995. The normal annual snowfall at PNR is 53.70 inches (164 centimeters).

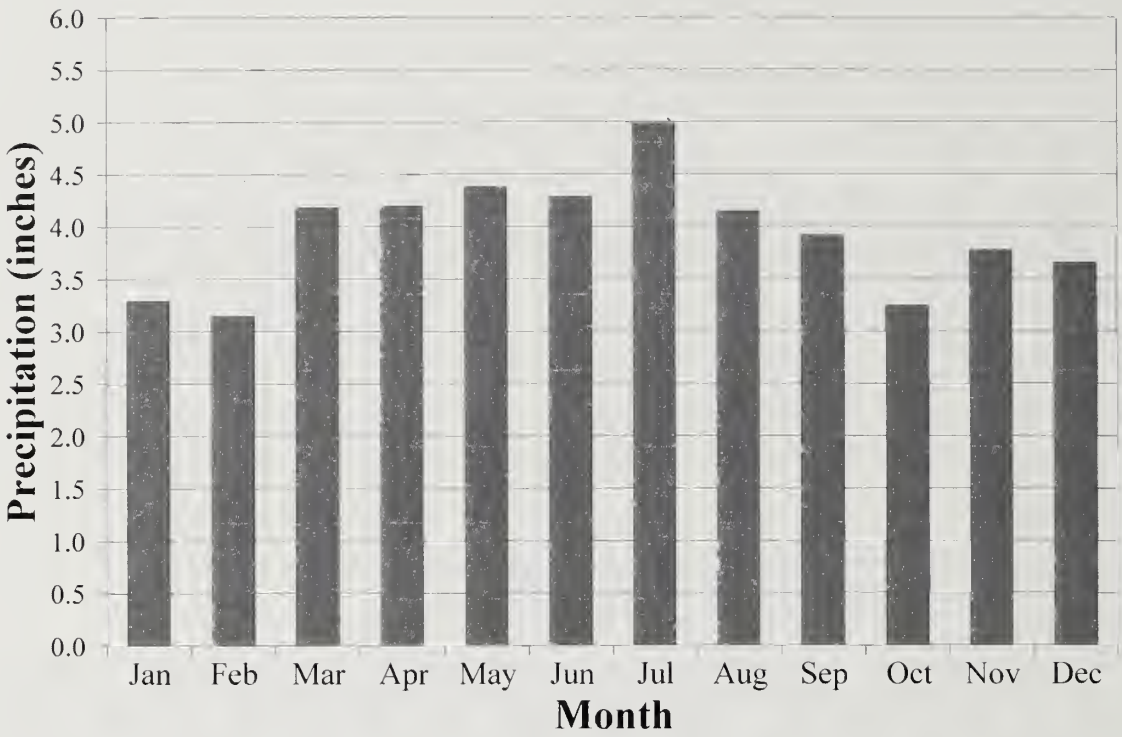


Fig. 9.—Bar graph showing the average amounts of monthly precipitation at PNR as recorded between January 1972 and December 1995. Volumetric equivalents of melted snow, ice pellets, etc., are included. The normal annual precipitation at PNR is 47.16 inches (144 centimeters).

pellets, etc., is as variable as the snowfall. Yearly precipitation averages 47.16 inches (144 centimeters) with a range from 39.07 inches (99 centimeters) in 1991 to a record high 59.11 inches (150 centimeters) in 1979. August of that year received a monthly record of 11.55 inches (35 centimeters). Hurricane Agnes with its inland path in June 1972 helped produce the second highest monthly record, 9.60 inches (24 centimeters). The mean monthly precipitation is relatively uniform (Fig. 9) with no pronounced rainy seasons. The greatest monthly variation occurs between June and August.

Climatic Classification.—Weather systems at the Reserve are predictably from the southwest. Topographic and orographic effects on the local climate are important, since PNR is in a relatively deep valley between two parallel ridges. Significant microclimatic variations occur between the valley and the various slope exposures (Geiger, 1950; Merritt, 1984).

According to the Köppen system of climatic classification, as modified by Trewartha (1954, 1961), PNR has a Humid Continental climate with cool summers and is subsequently classified as a *Dbf* climate. Letter *D* indicates a rainy climate with severe winters in which the coldest month is below 32°F (0°C) and the warmest month is above 50°F (10°C). Letter *b* further indicates that the warmest month is below 71.6°F (22°C), while letter *f* indicates constant moisture with rainfall of the driest month at least 2.4 inches (60 millimeters).

The warmest month at PNR, July, has a mean temperature of 70.0°F (21.1°C). Had this value been above 71.6°F (22.0°C), the classification of Powdermill would have changed to a *Daf* type. *Dbf* climates are found in Edmonton, Ottawa, Boston, Stockholm, and Moscow (Russia), while *Daf* types are characteristic of Minneapolis, New York, St. Louis, Beijing, and Pittsburgh (The Times Atlas, 1992). Based on the mean July temperature, PNR is associated with the cool summer, northern areas (*Dbf*), yet it is transitional to the warm summer areas (*Daf*) of eastern North America.

Vegetation

The Reserve's forests are not pristine, although more than 75% of the area is forested. Most of the current forest represents secondary and tertiary growth resulting from differential logging in the late 1800s and the 1920s. Besides scattered logging for on-site use in homestead farming, the Leacock family operated a saw mill for decades along Powdermill Run (Orndorff, 1969).

During the past 40 years, many but not all of PNR's open fields, meadows, and hawthorn thickets have reverted to forests. The old fields of the Friedline farm and others have been deliberately kept open for habitat diversity. The spoil banks around the strip-mine areas, with their pioneering vegetation, are still evident today.

The greatest species diversity at the Reserve occurs where vegetational change or species replacement has been greatest. These areas include forest and meadow margins, pond and stream banks, and disturbed areas such as spoil banks and roadsides.

Vegetation maps of eastern North America's deciduous forest are oversimplified when they delineate the biomes of Western Pennsylvania as Mixed Mesophytic Forests (Braun, 1950) or Appalachian Oak Forests (Küchler, 1964; Ferguson, 1968; Vankat, 1990; Stephenson et al., 1993). The tree composition of any given forest community usually varies with its aspect, elevation, slope, and past history (Oosting, 1956; Daubenmire, 1968, 1974, 1978), and a mosaic of four, intergrading forest types can be seen at PNR (Erdman and Wiegman, 1974; Beck et al., 1975; Utech, 1989).

The mixed-oak forests occupying the drier, upland sites on Laurel Hill Ridge correspond to the Appalachian Oak Forests of Küchler (1964) or the Chestnut–Oak Forests of earlier authors (Jennings, 1939) who wrote when the American chestnut (*Castanea dentata*) was a dominant species (Russell, 1987). The following oaks are frequently encountered in these forests: white oak (*Quercus alba*), scarlet oak (*Q. coccinea*), shingle oak (*Q. imbricaria*), rock chestnut oak (*Q. prinus*), northern red oak (*Q. rubra*), and black oak (*Q. veluntina*). Many of the successional tree species, for example, red maple (*Acer rubrum*), black cherry (*Prunus serotina*), and tulip tree (*Liriodendron tulipifera*), now on the ridge attest to the varying history of logging and disturbance (Mackey and Sivec, 1973; Beck et al., 1975; Abrams and Downs, 1990; Abrams and Norwacki, 1992). Mixed Mesophytic Forests (Braun, 1950) and/or Maple–Beech Forests occur along the moister slopes and gentle flood-plains of Powdermill Run. Also along this Run are scattered small stands of mature, secondary forests that include 100-year-old, open-grown white oaks (*Quercus alba*) and wonderful, monotypic stands of American beech (*Fagus grandifolia*) that reach over 100 feet (30.5 meters) in height. On north-facing slopes and in steeper ravines, there are Hemlock–Hardwood Forests with northern affinities (Whitney, 1990).

Plant Geography and Floristic Relationships.—The Reserve area is within the Appalachian Floristic Province of the eastern North American deciduous forest (Gleason and Cronquist, 1964; Good, 1964; Daubenmire, 1978; Takhtajan, 1986). Floristic provinces, like biomes, are areas with distinctive complexes of interactions between soils, climate, and plants, but differ in that the former are circumscribed by species distributions, not growth forms or community types (Daubenmire, 1968, 1974).

Each of PNR's native plant species has its own particular ecological and evolutionary history (Keener and Parks, 1986), which has led to its current overall distribution. Some of these species have northern affinities and associations with species typical of the Great Lakes forests of the upper Midwest, Canada, and New England. Others have southern affinities and their associations are with species found in the warmer southern Appalachians. Powdermill Nature Reserve lies within a region that has been a botanical crossroads for species with different centers of origin (Utech, 1980).

The ecological parameters that characterize the North American deciduous forest also occur widely in Europe and eastern Asia. Many pairs or groups of closely related species or genera are distributed disjunctly among these widely separated areas (Gray, 1840, 1846, 1859; Li, 1952; Wood, 1972; Boufford and Spongberg, 1983). The vicarious species in each of these areas share a common growth form and occupy similar or equivalent ecological niches.

A historical and evolutionary connection is inferred for plants in these widely scattered deciduous forests. Common ancestors of these now separated species are found as Tertiary fossils in the high Arctic latitudes as members of the so-called Arcto–Tertiary Geoflora (Graham, 1972; Hsu, 1983). Through migration, selection, and isolation, descendants of this ancient, once uninterrupted forest are now continents apart. Needless to say, no flora remains stable forever.

Taxonomic Representation.—Representation of the four major taxonomic divisions of vascular plants, that is, Pteridophyta (ferns and fern allies), Pinophyta (conifers),

Table 4.—*Distribution of native and non-native species among the major plant divisions at Powdermill Nature Reserve compared to Pennsylvania.*[a]

Taxonomic division	Powdermill Number of species			Pennsylvania[a] Number of species		
	Native (%)[b]	Non-native (%)[b]	Total [%][c]	Native (%)[b]	Non-native (%)[b]	Total [%][c]
Pteridophyta	36 (100)	0 (0.0)	36 [4.2]	107 (99.1)	1 (0.9)	108 [3.2]
Lycopodiophyta (clubmosses)	5 (100)	0 (0.0)	5 [0.6]	22 (100)	0 (0.0)	22 [0.7]
Equisetiophyta (horsetails)	1 (100)	0 (0.0)	1 [0.1]	8 (100)	0 (0.0)	8 [0.2]
Polypodiophyta (ferns)	30 (100)	0 (0.0)	30 [3.5]	77 (98.7)	1 (1.3)	78 [2.3]
Pinophyta (conifers)	3 (23.1)	10 (76.9)	13 [1.5]	15 (57.7)	11 (42.3)	26 [0.8]
Magnoliopsida (dicots)	397 (63.2)	231 (36.8)	628 [73.8]	1,266 (55.5)	1,016 (44.5)	2,282 [68.8]
Liliopsida (monocots)	118 (67.8)	56 (32.2)	174 [20.4]	687 (76.2)	215 (23.8)	902 [27.2]
Totals	554 (65.1)	297 (34.9)	851 [100]	2,076 (62.6)	1,242 (37.4)	3,318 [100]

[a] Pennsylvania data are from Rhoads & Klein, Jr. (1993).
[b] (%) The paired percentages of native and non-native species within a taxonomic division.
[c] [%] The contribution percent of a taxonomic division to the total flora.

Magnoliopsida (dicotyledons), and Liliopsida (monocotyledons), within the PNR flora closely parallels that found in the Pennsylvania flora at large (Table 4). This parallelism applies to both native and non-native species. Flowering plants (dicots and monocots) constitute 94.2% of the vascular plant species at PNR and 96.0% of Pennsylvania's flora. The 1.8% difference between the floras results in large part from several large genera, for example, *Carex* (sedges), *Rubus* (raspberries), *Solidago* (goldenrods), and *Aster* (asters), which are better represented elsewhere in the state than at the Reserve.

The species distributions among families in the two floras are congruent. A total of 129 plant families is known from PNR and 179 from Pennsylvania. The ten largest families at PNR are the same for Pennsylvania (Table 5). At PNR, these families constitute 48.1% of the flora, while they account for 50.8% of the state's flora. The family rankings by number of species represented, as well as their native versus non-native compositions, are also very similar. Five families with open-habitat tendencies, Poaceae (grasses), Lamiaceae (mints), Fabaceae (legumes), Brassicaceae (mustards), and Scrophulariaceae (snapdragons), have significant weedy components in both floras. The species per family distribution in each flora supports the floristic maxim that there are few families with many species and many families with few species.

Flowering Periods.—The monthly distribution of collections from the Reserve (Fig. 10) shows a pattern characteristic of temperate woodland floras. This distribution approximates the Reserve's floral phenology, since few species flower for more than a few weeks and usually only flowering individuals are collected. Flowers are ordinarily required for critical identification.

There are distinct spring (April to May) and autumn (September to October) flowering components to the flora. The spring flora, composed primarily of ephemeral

Table 5.—*Distribution of native and non-native species among the ten largest plant families at Powdermill Nature Reserve compared to Pennsylvania.*[a]

Plant family	Powdermill Number of species			Pennsylvania[a] Number of species		
	Native (%)[b]	Non-native (%)[b]	Total [%][c]	Native (%)[b]	Non-native (%)[b]	Total [%][c]
Asteraceae (Aster)	66 (66.7)	33 (33.3)	99 [11.6]	215 (58.1)	155 (41.9)	370 [11.2]
Poaceae (Grass)	41 (53.2)	36 (46.8)	77 [9.1]	177 (55.5)	142 (44.5)	319 [9.6]
Rosaceae (Rose)	27 (58.7)	19 (41.3)	46 [5.4]	95 (60.5)	62 (39.5)	157 [4.7]
Liliaceae (Lily)	21 (60.0)	14 (40.0)	35 [4.1]	46 (61.3)	29 (38.7)	75 [2.3]
Lamiaceae (Mint)	18 (54.5)	15 (45.5)	33 [3.9]	54 (49.1)	56 (50.9)	110 [3.3]
Fabaceae (Pea)	11 (39.3)	17 (60.7)	28 [3.3]	55 (44.7)	68 (55.3)	123 [3.7]
Cyperaceae (Sedge)	25 (100)	0 (0.0)	25 [2.9]	265 (93.0)	20 (7.0)	285 [8.6]
Ranuculaceae (Buttercup)	17 (70.8)	7 (29.2)	24 [2.8]	47 (72.3)	18 (27.7)	65 [2.0]
Brassicaceae (Mustard)	9 (40.9)	13 (59.1)	22 [2.6]	27 (27.3)	72 (72.7)	99 [3.0]
Scrophulariaceae (Snapdragon)	11 (55.0)	9 (45.0)	20 [2.4]	41 (49.4)	42 (50.6)	83 [2.5]
Totals [%]	246	163	409 [48.1]	1,022	664	1,686 [50.8]

[a] Pennsylvania data are from Rhoads & Klein, Jr. (1993).
[b] (%) Comparative percentages of native and non-native species within major families at Powdermill Nature Reserve and Pennsylvania. Family ranking based on total species occurrence at Powdermill Nature Reserve.
[c] [%] Percentage contribution of major families to the Powdermill Nature Reserve and Pennsylvania floras. Powdermill Nature Reserve has 851 species and Pennsylvania, 3,318.

herbs plus most of the native trees and shrubs, is relatively large and taxonomically quite different from the strictly autumn flora, in which members of the aster and grass families predominate. In the spring forest understory, there are successive replacements of one group of perennial herbs by another as the season progresses and the forest canopy closes. There is also a vertical succession of flowering within the forest. Flowering in the herbaceous layer is followed by that of the shrub and sapling layer and finally by that of the trees. The weedy and introduced plants of the meadows, fields, and roadsides flower mostly in summer and autumn.

Growth Forms.—The frequencies of various growth forms or habits within the Reserve's flora show numerous parallels with those found in the Pennsylvania flora at large (Table 6). Four growth form classes can be recognized and compared: trees, shrubs, woody vines, and herbs. The herbs can be subdivided into annuals/biennials and perennials. For PNR and Pennsylvania, the relative incidences of growth-form classes are remarkably similar. There is also a proportional distribution among

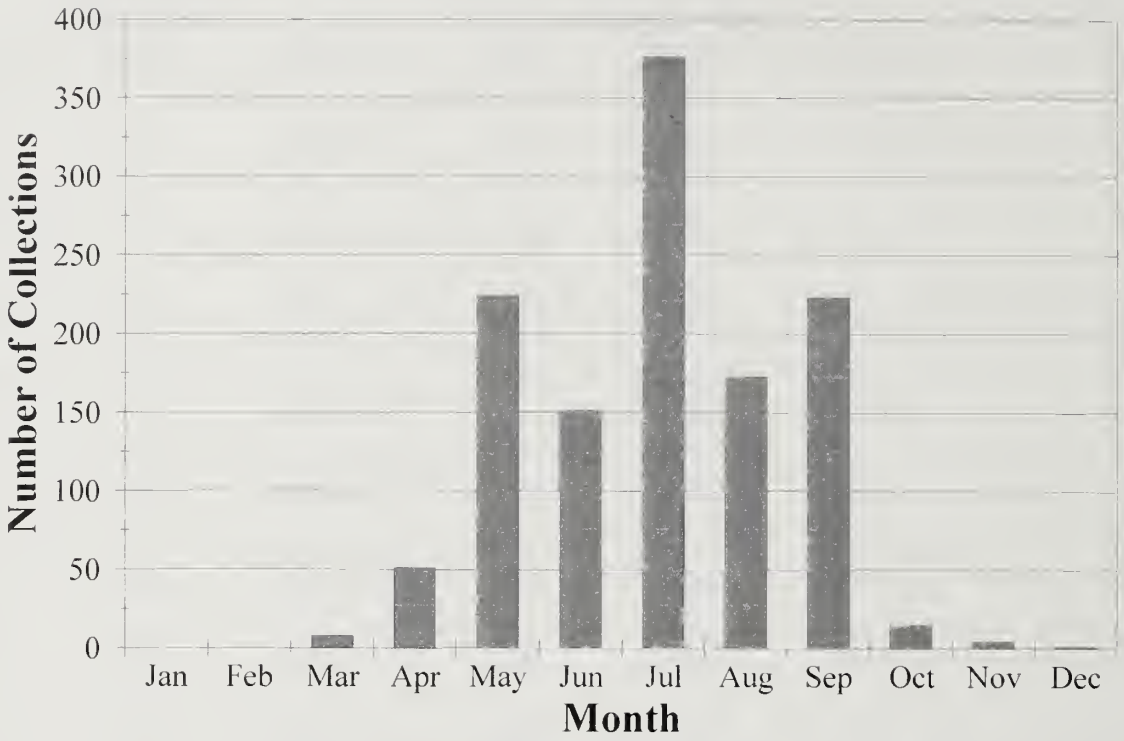


Fig. 10.—Bar graph showing the monthly distribution of plant collections from PNR. The spring (May) and fall (September) peaks correspond to the distinctive seasonal flowering periods of the spring ephemerals and fall wildflowers respectively.

the native and non-native species within each growth-form class.

Perennial herbs constitute the largest group in both floras. The most notable difference between the two areas is the higher percentage of weedy, annual/biennial herbs found in Pennsylvania, many of which do not occur at the Reserve or elsewhere in Western Pennsylvania. A total of 85 tree and 75 shrub species is known from the Reserve (Table 6).

The concepts of natural habitat, native species, and natural patterns of vegetational change are neat, ideal, and problematic. The "naturalness" of any given habitat depends on its history. Designating a forest as "old growth" is more illuminating than characterizing it as "virgin forest," because various unknown, natural, and artificial disturbances may have been influencing that site. Big, old trees per se do not make a virgin forest. At the Reserve, determining which plant habitats are natural and which species are native can be difficult. Furthermore, distinguishing cultivated native plants from their local, indigenous cousins can be equally troublesome.

Naturalization of Cultivated Plants and Weeds

Successful plant dispersal and naturalization, whether from a few meters away or from another continent, tend to occur from one ecologically equivalent area to another. Such introductions typically exploit open habitats, which occur during various cycles of disturbance and regeneration. Some open habitats occur naturally, while others do not, and dispersal into such areas can be either natural or artificial.

Table 6.—*Distribution of growth form types among native and non-native species at Powdermill Nature Reserve compared to Pennsylvania.*[a]

Growth-form types	Powdermill Number of species			Pennsylvania[a] Number of species		
	Native (%)[b]	Non-native (%)[b]	Total [%][c]	Native (%)[b]	Non-native (%)[b]	Total [%][c]
Trees	63 (74.1)	22 (25.9)	85 [10.0]	118 (63.4)	69 (36.6)	186 [5.6]
Shrubs	45 (60.0)	30 (40.0)	75 [8.8]	188 (65.3)	100 (34.7)	288 [8.7]
Woody vines	12 (57.1)	9 (42.9)	21 [2.5]	21 (60.0)	14 (40.0)	35 [1.0]
Herbs (Annuals/biennials)	20 (26.7)	55 (73.3)	75 [8.8]	295 (32.9)	602 (67.1)	897 [27.0]
Herbs (Perennials)	414 (69.6)	181 (30.4)	595 [69.9]	1,454 (76.0)	458 (24.0)	1,912 [57.6]
Totals	553 (65.1)	297 (34.9)	851 [100]	2,076 (62.6)	1,242 (37.4)	3,318 [100]

[a] Pennsylvania data are from Rhoads & Klein, Jr. (1993).
[b] (%) The paired percentages of native and non-native species within a growth-form type.
[c] [%] The contributing percent of a growth-form type to the total flora.

The native status of a species in a given area can be based on two criteria: (1) evident natural means of dispersal to that area, such as migration, natural catastrophes, and animals (but not humans); and (2) establishment in an evidently natural habitat (Harlan and deWit, 1965). Frequently in eastern North America, native status is further limited to species occurring in the area without human intervention from pre-Columbian times, that is before circa 1500. The latter restriction, while difficult to apply rigorously, attempts to discount the transformation of the flora and vegetation caused by European colonization and settlement. (An analogous disturbance date in Europe or eastern Asia would be considerably more distant.)

Significant vegetational disturbances and floristic changes, many of which predate Columbus, have kept some Reserve habitats open. The use of fire by Native Americans is one example (Stewart, 1951, 1957; Day, 1953; Russell, 1983; Delcourt, 1987; DeVivo, 1991; Delcourt and Delcourt, 1997, 1998). Periodic lightning-induced fires on the ridges (Bardens and Woods, 1974; Haines et al., 1978; Abrams, 1992; Ruffner and Abrams, 1998) and forest "blow-downs" from storms must also be considered historically. Major changes in forest-tree composition at PNR have occurred repeatedly. Recent examples include the progressive loss of American chestnut (*Castanea dentata*) by chestnut blight and American elm (*Ulmus americana*) by Dutch elm disease as viable dominant species, and the contemporary devastation of maples and oaks by gypsy-moth infestation.

Introduced species found at the Reserve range from limited introductions and those that merely persist to others that have spread aggressively (Fig. 11). The differences are often site- and time-specific. Depending on a species' ecological tolerance, it may be "well behaved and limited" in one context and "noxious and pervasive" in another.

Of the 11 plants currently on the legislated Pennsylvania Noxious Weed Control Act list, five occur at PNR. These include Canada thistle (*Cirsium arvense*), multiflora rose (*Rosa multiflora*), Johnson grass (*Sorghum halepense*), bull thistle (*Cirsium vulgare*), and Jimson weed (*Datura stramonium*).

Agriculture, no matter how primitive, depends upon maintaining open habitat. This has been true since the advent of plant domestication and human use of fire 10,000 years ago (Chapman et al., 1982). Gardens, fields, homesteads, and paths are all human-dependent,

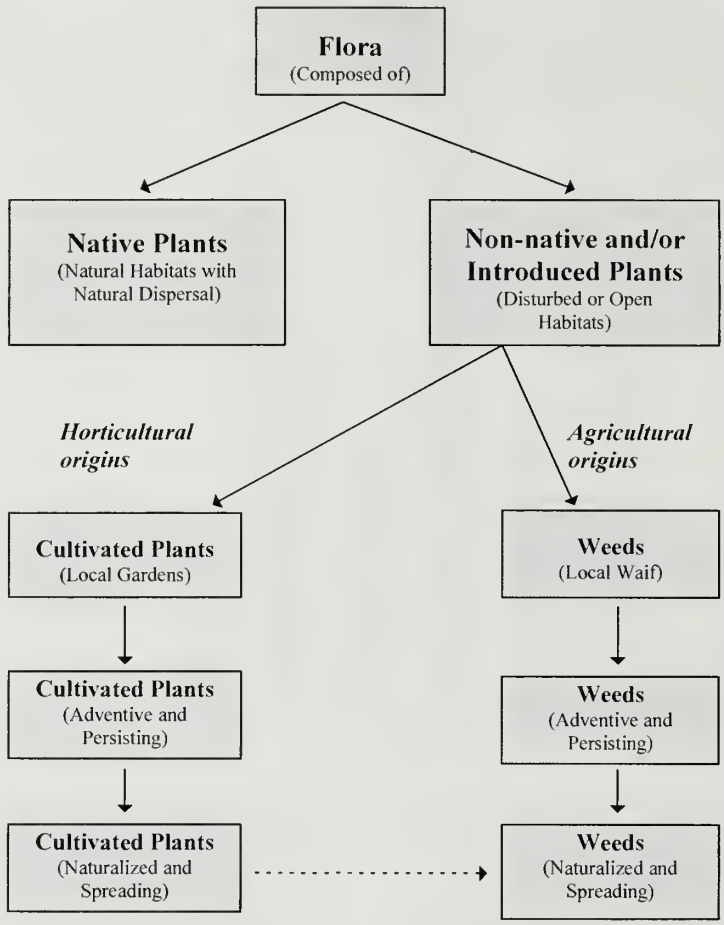


Fig. 11.—Flow-chart comparing the role of natural and disturbed or open habitats on native and non-native plants. Introductions whether from horticultural or agricultural origins share similar paths to naturalization.

open habitats. In the past, corn, oats, wheat, buckwheat, and rye all have been grown on the PNR fields (Orndorff, 1969).

As human cultures directly selected and improved their crops in open habitats manipulated by fire and woodland clearing (Sykes, 1980; Chapman et al., 1982), they inadvertently co-selected another group of plants, the weeds (Harlan and deWit, 1965). These cultural followers frequently have broader ecological tolerances than their associated crops and, consequently, they persist and spread. A given crop typically has its own set of weeds.

It is not surprising, therefore, that there are more European and Asian weeds in temperate North America than North American weeds in the temperate Old World. Agriculture and crop-plant selection have had a much longer history in the Old World than in the New. Many of the weedy plants now in the New World have become integral parts of our flora and factor into the dynamics of our changing landscape. They are here reproducing, competing, and occupying niche space. There is probably no essential difference between ruderal weeds with agricultural origins and naturalized cultivated plants with horticultural origins. There are old and new introductions and their naturalization has been a historical process. Figure 11 compares native and non-native species and the role of open habitat in the naturalization process.

Table 7.—*Historical comparison of Powdermill Nature Reserve checklists.*

Author (date)	Number of families	Number of genera	Number of species	Basis for species validity (family classification level)
Henry (1972)	93	295	606[a]	Specimens and site records (Fernald, 1950)
Pearth (1975)	91	298	468[a]	Specimens and lists (Fernald, 1950)
Utech (1984)	90	290	478	Specimen-based (Gleason and Cronquist, 1963, ed. 1)
Utech (this publication)	129	456	851	Specimen-based (Gleason and Cronquist, 1991, ed. 2)

[a] The species totals reported by Henry (1972) and Pearth (1975) were based in part on specimens. Only 224 collections of Henry's 606 listed species and 231 of Pearth's 468 had specimens from Powdermill Nature Reserve.

Previous Powdermill Checklists and Specimen Documentation

For biological field stations, inventories of their floras and faunas are crucial foundations. With the creation of the Reserve some 40 plus years ago, producing a checklist of its plant species became a high priority for the Botany staff. Curator LeRoy K. Henry (Utech, 1985) provided popular lists of Powdermill's ferns (1957*a*, 1957*b*, 1959*a*, 1959*b*, 1964), mushrooms (1957*c*), lichens (1960*a*), bryophytes (1960*b*), roses (1966*b*), violets (1962*d*), and lobelias (1957*d*), as well as lists of spring wildflowers, trees, shrubs, vines, and spoil bank plants (Henry, 1957*b*, 1962*b*, 1962*c*, 1965*b*, 1967*a*, 1967*b*). New Reserve records were systematically reported (Henry, 1958*a*, 1958*b*, 1962*a*, 1965*a*, 1966*a*, 1968*a*, 1968*b*, 1971*a*, 1971*b*) and added to a cumulative checklist (manuscript, Henry, 1972).

Any floristic account that is to be authoritative and verifiable must be specimen-based and not predicated on unvouchered sight records or someone else's list. Such an effort must begin with a review of the specimens that exist. Three previous works have treated the vascular flora of PNR comprehensively (Table 7). Henry's 1972 manuscript catalogued 606 species, but this list was only partially specimen-based. In her Westmoreland County flora, Associate Curator Dorothy L. Pearth (1975) explicitly noted Powdermill occurrences, based on either Carnegie Museum specimens or Henry's earlier list. In the early 1980s, attempts to locate specimens confirming many of these reports proved fruitless. Of the 468 species that Pearth attributed to Powdermill in 1975, only 231 could be documented by specimens in the Carnegie Museum herbarium.

After several years of intensive fieldwork, Curator Frederick H. Utech (1984) produced a fully specimen-based list that, in number of species reported, nearly matched previous lists (Table 7). The present checklist catalogues 851 species, including nine hybrids, from 129 families and 456 genera. This is 245 species more than were reported in Henry's final list.

During the last four decades, the increase in the total number of collections from PNR has depended on individual staff and their particular interests. The graphs in Figures 12 and 13 show the number of species added each year since 1954 and their cumulative increase, respectively. The completeness of any biotic survey is a nonlinear function of the total number of visits, the percentage of habitats visited, and percentage of seasonal coverage.

Checklist Format and Content

In this checklist, the following information is presented for each species: family association; scientific name with author citation; major scientific synonyms(s) (if any); common name(s); collection location(s), which frequently involve tract names (Tables 1, 8; Fig. 2); collector name(s) (Table 9); collector's number (s.n., if without a number); collection date (Fig. 10); generalized habitat or ecological note (Table 10); and region of origin, if introduced (Table 11). Most of this information comes directly from specimen labels, which frequently provide further systematic, ecological, and geographical information recorded by the collectors. Such data may include latitude and longitude, elevation, soil type, and plant associates as well as population size, plant height (if woody), and flower color. To find this additional infor-

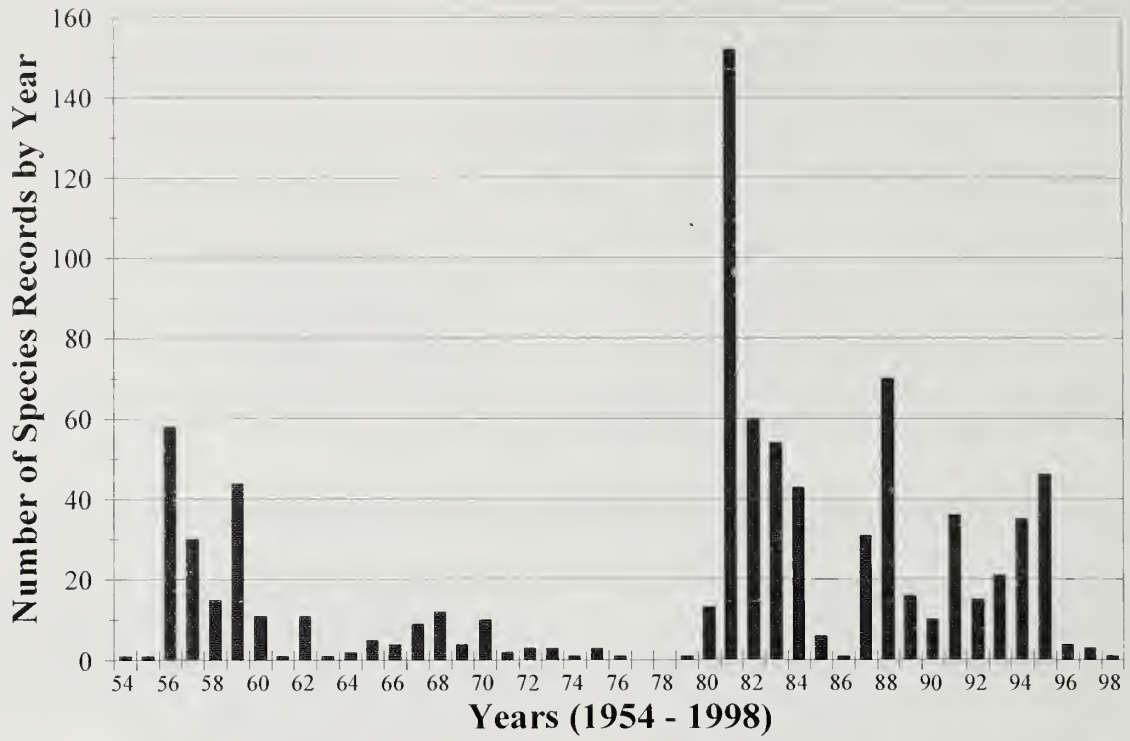


Fig. 12.—Bar graph showing the number of new plant species collected at PNR each year between 1954 and 1998. Presently, 851 species are known.

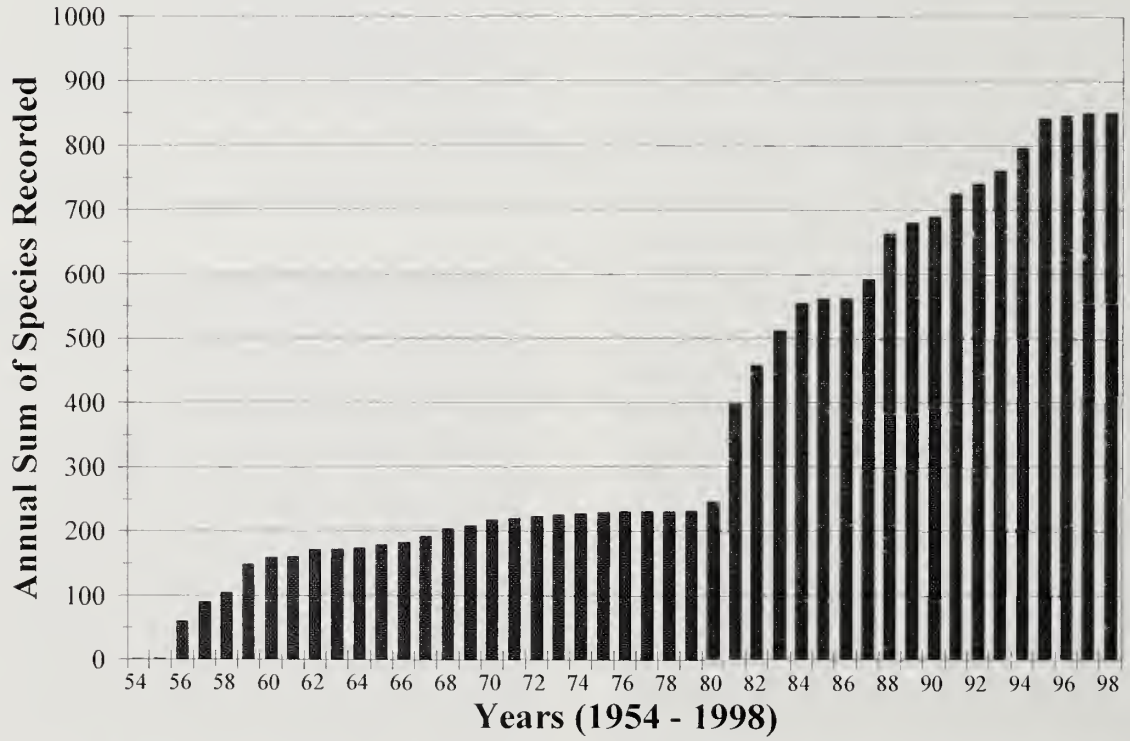


Fig. 13.—Bar graph showing the annual sum of plant species known from PNR between 1954 and 1998. Presently, 851 species are known.

Table 8.—*Citation frequency of collecting sites at Powdermill Nature Reserve based on herbarium label data showing where collecting occurred.*

General Collecting Areas	Frequency	Percent (%)
Knupp/Friedline	201	14.1
Strip-mine areas	176	12.3
Johnston tract	141	9.9
Cabins 2–5 area	117	8.2
Powdermill Run	102	7.1
Crisp Pond area	93	6.5
Headquarters area	92	6.4
Laurel Run area	85	6.0
Moul/Moul Springs area	72	5.0
Byers tract	71	5.0
Calverley Lodge area	46	3.2
Herb Garden area	40	2.8
Fiorina tract	37	2.6
Raven's Roost area	24	1.7
Biobrook Shack area	21	1.5
Cummings tract	18	1.3
Nature Center/Museum area	16	1.1
Coleman tract	15	1.1
Marshall tract	13	0.9
Patchell tract	10	0.7
Todd House area	10	0.7
Weaver Mill Road area	8	0.6
Bird Blind Hut area	7	0.5
Iron Springs/Swamp area	5	0.4
Shawley tract	3	0.3
Coot Slough area	3	0.2
Anderson area	2	0.1
Totals	1,429	100.0

mation, one must consult either the herbarium labels themselves or the specimen database in the Carnegie Museum herbarium.

Family Sequence.—The checklist is organized in a family sequence and then within each family alphabetically by genus and species. The family sequence follows Cronquist (1991; also Gleason and Cronquist, 1991; Flora of North America Editorial Committee, 1993; Rhoads and Klein, 1993; Holmgren, 1998) and differs significantly from other such sequences used widely for much of this century (Fernald, 1950; Gleason, 1963; Gleason and Cronquist, 1963), including the earlier checklists by Henry (1972), Pearth (1975), and Utech (1984).

The families recognized in this checklist follow Cronquist (1991), but with the advent of gene sequencing and molecular systematics, numerous new families and associations are being proposed and used. Recently, the Liliaceae (lily family), for example, has been divided into no less than 46 smaller families by Takhtajan (1997) and 42 families by Kubitzki (1998). In future manuals and floras one may well see these segregated families. Common "liliaceous" genera at PNR would then be found in the following families: *Allium* (Alliaceae), *Asparagus* (Asparagaceae), *Convallaria* (Convallariaceae), *Hemerocallis* (Hemerocallidaceae), *Hosta* (Hostaceae), *Hypoxis* (Hypoxidaceae), *Lilium* (Liliaceae, restricted sense), *Medeola* (Medeolaceae), *Vertratum* (Melanthiaceae), *Trillium* (Trilliaceae), and *Uvularia* (Uvulariaceae).

Scientific Names.—To ensure their unambiguous application and stability, botanical scientific names, unlike common names, are governed by the *International Code of Botanical Nomenclature* (Greuter et al., 1994). To evaluate names for correct use in this checklist, according to the *Code*'s provisions, several standard references (Gleason and Cronquist, 1991; Greuter, 1993*a*, 1993*b*; Rhoads and Klein, 1993) were routinely consulted. Supplementary information was obtained from Kartesz and Kartesz (1994), and the *National List of Scientific Plant Names* (Soil Conservation Service, 1982). Four other works were consulted especially for cultivated plants; *Hortus Third* (Bailey Hortorium, 1976), *Royal Horticultural Society Dictionary of Gardening* (Huxley, 1992), *Manual of Woody Landscape Plants* (Dirr, 1990), and *Manual of Cultivated Broad-leaved Trees and Shrubs* (Krussmann, 1984). Synonyms are cited for species that have had recent name changes; these synonyms provide links to corresponding treatments in older floras and checklists. The author of a scientific name is a critical component of its complete, unambiguous citation. In this checklist, authors' surnames are rendered in full, rather than abbreviated, to avoid confusion. Familial and generic names, as well as their recent synonyms, are indexed.

Common Names.—The common names cited in this checklist have been taken mainly from regionally relevant works (Fernald, 1950; Jennings and Avinoff, 1953; Pearth, 1975; Strausbaugh and Core, 1978; Wherry et al., 1979; Gleason and Cronquist, 1991; Rhoads and Klein, 1993). The list of those reported is not exhaustive, only regionally selected. Many of the Reserve's native species with ranges that extend into Quebec have one or more French common names (Marie-Victorin, 1935). Furthermore, the wide-ranging, Old World introductions at the Reserve often have up to a dozen or so additional common names in numerous languages. Orthographic prac-

Table 9.—*Plant collectors at Powdermill Nature Reserve.*

Collectors	Collections	Collecting dates	Percent (%)
Utech, Frederick H. (with S. Kawano & H. Kudo - 1; M. Ohara - 54; T. Sato - 2)	785	1979–1998	64.1
Henry, LeRoy K. (with R. C. Leberman - 1)	216	1954–1972	17.6
Leberman, Robert C. (with R. S. Mulvihill - 27)	83	1966–1997	6.8
Mulvihill, Robert S. (with R. C. Leberman - 29; R. C. Leberman & L. Moore - 1; R. C. Leberman & C. Rudy - 1; R. C. Leberman & P. Wisner - 1; B. J. Mulvihill & R. C. Leberman - 1)	61	1982–1996	5.0
Isaac, Bonnie L. (with J. A. Isaac - 25)	25	1990	2.0
Thompson, Sue A. (with J. Loughlin - 6; J. H. Nishida & Lua Hui-Khang - 3; J. H. Nishida, M. Macdonald & N. Hyde - 1)	17	1983–1985	1.4
Kiger, Robert W.	7	1980–1982	0.6
Ross, Dean H.	6	1961–1965	0.5
Nishida, Joy H. (with R. Keplinger - 1; Lua Hui-Kheng & L. Lange - 1)	5	1985	0.4
Netting, M. Graham	4	1960–1974	0.3
Netting, Jane S.	4	1966–1968	0.3
Richmond, Neil D.	4	1959–1966	0.3
Pearth, Dorothy L.	3	1973	0.2
Netting, Anthony G.	2	1959–1960	0.2
Feitler, Lucia	1	1966	0.1
Guilday, John	1	1959	0.1
Jennings, Otto E.	1	1958	0.1
SUMMARY: Collectors—30	1,225	1954–1998	100.0

Table 10.—*Summary of habitat citations given for each species in the Powdermill Nature Reserve checklist based on herbarium label data.*

Habitat (areas and habitats)	Frequency	Area percent (%)	Habitat percent (%)
Forested areas:		35.4	
Woods	376		32.1
Thickets	39		3.3
Open areas.		43.0	
Old strip mines	167		14.2
Cultivated areas	132		11.3
Ruderal	92		7.8
Fields	66		5.6
Roadsides	39		3.3
Lawns	8		0.7
Wet areas:		21.6	
Meadows	97		8.3
Springs	70		6.0
Swamps	42		3.6
Streams	25		2.1
Marshes	16		1.4
Sloughs	3		0.3
Totals	1,172	100.0	100.0

Table 11.—*Geographical centers of origin of the non-native taxa at Powdermill Nature Reserve. The centers of origin for the non-native taxa at Powdermill Nature Reserve were based on various floras and manuals (Fernald, 1950; Gleason, 1963; Gleason and Cronquist, 1991; Tutin et al., 1964; Ohwi, 1965). The PNR flora contains 851 species.*

Geographical centers	Number of alien species	Percent of non-native flora (%)	Alien percent of total PNR flora (%)
Europe	112	37.7	13.2
Eurasia	96	32.3	11.3
East Asia	57	19.2	6.7
North America (native cultivars)	22	7.5	2.6
Central/South America	10	3.4	1.2
Totals	297	100.0	34.9

tices in rendering English common names vary widely (Rickett, 1965; Kartesz and Thieret, 1991), and no attempt has been made here to apply a comprehensive rationale in their presentation. All of the common names cited are indexed.

Location.—Tract names are used to specify the locations of many collections cited in this checklist (Table 1, Fig. 2). Table 8 summarizes tract frequency for these specimens. Location precision can vary from an area (Johnston tract), to a linear transect (along Powdermill Run, between Calverley Lodge to Moul Spring), to a point (Moul Spring or Herb Garden). Latitude and longitude coordinates for many of the author's more recent collections were established using a hand-held, global positioning satellite (GPS) receiver.

Collectors and Collector's Numbers.—Since 1954, when the first CMNH collections from Powdermill Nature Reserve were taken, 17 collectors, assisted by another 13, have gathered the 1,225 specimens cited in this checklist. Table 9 lists the primary collectors and their associates as well as their total collections and collecting years. Their full names are cited for reference purposes in this table, although only surnames appear in the checklist itself.

All of these collectors, mostly CMNH staff, have deposited their specimens in the Carnegie Museum herbarium. Two collectors, Botany Curators L. K. Henry and F. H. Utech, account for 81.7% of the collections. When the collections by the two resident Bird-banders, Robert C. Leberman and Robert S. Mulvihill, are added, the aggregate figure reaches 93.5% of the total. If a collector numbered his or her collections, that unique number is cited along with his or her name.

Collection Dates.—Day, month, and year, are associated with most of the collections. In the checklist, months are indicated by three-letter abbreviations. The 1,212 collections used for the monthly tabulation in Figure 10 are slightly fewer than the total of 1,225 known from the Reserve. Label data for those 13, apparently missing collections, stated only "summer" instead of a particular month.

Habitat and Ecological Notes.—A summary description of habitat is given in text for each species in this checklist. These habitats fall under three main categories: forested areas, open areas, and wet areas. Table 10 summarizes the frequency of these habitats among all the species known from the Reserve. The majority of species are associated with wooded environments, which is not surprising since more than 75% of the Reserve is covered by forests.

A significantly different plant association is found in the open, disturbed habitats, such as old strip-mines, fields, roadsides, gardens, and lawns. Selected wet areas such as springs, swamps, streams, and marshes support yet another distinct set of species.

Naturalized species with agricultural or horticultural origins are included in this checklist, as in the *Vascular Flora of Pennsylvania* (Rhoads and Klein, 1993). For these non-native species at the Reserve, a note indicates whether the species is naturalized or a more limited cultivated plant. The designation "ruderal" indicates an association with disturbed, open habitats.

Specimens from formal plantings or gardens, although technically not part of the established flora, also have been included in the checklist to a limited degree (Table 8). They are marked clearly as cultivated plants. Considering the nature of their occurrences elsewhere, many of these species have ecological potential for becoming

naturalized. Furthermore, cultivated plants growing at the Reserve provide an ecological check on the Reserve's hardiness zone rating of 5 (Arnold Arboretum, 1990); Pittsburgh is in zone 6.

Area of Origin for Non-native Species.—The Powdermill flora of 851 species has 65.1% native and 34.9% non-native species (Tables 4, 6), compared with 3,318 species in Pennsylvania of which 62.6% are native and 37.4% are non-native (Rhoads and Klein, 1993). Past agriculture, horticulture, forestry, industry, and transportation account for most of these introductions (Fig. 11).

For each non-native Powdermill species, a region of origin has been cited based on information from various floras and botanical atlases. Nearly 90% of these introductions are from the north-temperate zones of the Old World (Table 11), that is, Europe (37.7%), Eurasia (32.3%), and eastern Asia (19.2%). At the generic level, the floras of Europe (Tutin, 1964) and eastern Asia (Ohwi, 1965), particularly temperate China and Japan, are similar to that of eastern North America, as are their climatic and soil conditions. Ecologically equivalent areas imply similar hardiness zones and selective pressures.

Checklist Use

This checklist provides an annotated inventory of the vascular plants of Powdermill Nature Reserve. It is neither a wildflower guide nor a flora or manual for identification, and should be used in conjunction with one by someone not familiar with the flora of the region.

As a field station devoted to biological research, PNR requires documented checklists of all groups of organisms for both research and management purposes. These lists themselves become permanent parts of the floristic and faunistic literature of the region and state. PNR is one of the best-documented areas in southwestern Pennsylvania.

The present checklist provides a floristic benchmark for Westmoreland County and the surrounding Laurel Highlands. The Highlands' Laurel Hill Ridge forms a common boundary for five counties: Cambria, Fayette, Indiana, Somerset, and Westmoreland. No fewer than six state parks and parts of two state game lands (numbers 42 and 111), as well as Forbes State Forest, including Roaring Run Natural Area, are within the Highlands. PNR hiking trails connect with those of neighboring Linn Run State Park and, along the ridge, Forbes State Forest.

The Florence S. Nimick Nature Center is an integral part of the Reserve. Besides various educational programs, it sponsors a series of natural history exhibits, hiking trails, and gardens, for example, the Herb and Butterfly gardens. This checklist provides a quick shortcut for neighbors and general visitors who rely on PNR for identifications. Various ecologists, zoologists, botanists, and students working or visiting at PNR frequently require a checklist in their activities. Information on what grows at PNR is potentially valuable for gardeners interested in plant hardiness or species occurrence for wildflower gardens.

In the final analysis, a checklist represents merely a status report for a particular point in time, since new records are continually found. Specimens documenting each newly discovered species at the Reserve should be deposited in the Carnegie Museum herbarium as vouchers and to add this relevant information to our ever-growing database on the plants of Powdermill Nature Reserve.

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Notes

Checklist of the Vascular Plants of Powdermill Nature Reserve, Westmoreland County, Pennsylvania

Division Lycopodiophyta

Family Lycopodiaceae

Diphasiatrum

***D. digitatum* (Dillenius ex A. Braun) Holub**
(*Lycopodium digitatum* Dillenius ex A. Braun; *L. complanatum* Linnaeus var. *flabelliforme* Fernald; *L. flabelliforme* (Fernald) Blanchard)
Ground-cedar; Running-pine
3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Moul Spring, 5 Jul 1981, *Utech 81-133*; Cabin #5, 26 Aug 1990, *Isaac & Isaac 3288*. — Rocky woods.

Huperzia

***H. lucidula* (Michaux) Trevisan**
(*Lycopodium lucidulum* Michaux)
Shining clubmoss; Shining fir-moss
Cabins #4-5, 5 Sep 1988, *Utech 88-1065*; Calverley Lodge to Moul Spring, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3274*. — Cool, moist woods.

Lycopodium

***L. clavatum* Linnaeus**
Running clubmoss
Moul Spring, 5 Jul 1981, *Utech 81-099*; Johnston #4, 6 Jun 1984, *Mulvihill s.n.* — Dry, rocky woods.

***L. dendroideum* Michaux**
(*L. obscurum* Linnaeus var. *dendroideum* D.C. Eaton)
Ground-pine; Prickly-tree clubmoss
3 mi S of Rector, 13 Aug 1957, *Henry s.n.*; 3 mi S of Rector, 9 Oct 1960, *Henry s.n.*; Calverley Lodge to Moul Spring, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3275*. — Moist woods and swamp margins.

Family Isoetaceae

Isoetes

***I. engelmannii* A. Braun**
Engelmann's quillwort
2.0 mi SW of Rector, 18 Oct 1955, *Henry s.n.*; Strip-mine area, 25 Aug 1960, *Richmond s.n.*; Headquarters, Coot Slough area, 27 Aug 1973, *Leberman s.n.* — Amphibious herb.

Division Equisetophyta (Horsetails)

Family Equisetaceae

Equisetum

***E. arvense* Linnaeus**
Field horsetail
Headquarters area, 10 Oct 1988, *Utech 88-1139*. — Ruderal areas (species also Eurasia).

Division Polypodiophyta (Ferns)

Family Ophioglossaceae

Botrychium

***B. dissectum* Sprengel**
(*B. obliquum* Muhlenberg in Willdenow)
Lace-frond grape-fern; Dissected grape-fern
Cabin #3, Aug 1959, *Henry s.n.*; Cabin #3, 25 Sep 1965, *Henry s.n.*; Lower strip-mine area, Crisp Pond meadows, 16 Sep 1981, *Utech 81-478*; Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3266*; Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3267*. — Open, moist woods.

***B. matricariaefolium* (Doll) A. Braun ex W.D.J. Koch**
Daisy-leaf moonwort
Johnston #1, 27 May 1984, *Leberman & Mulvihill s.n.* — Cool, moist woods.

***B. virginianum* (Linnaeus) Swartz**
Rattlesnake fern; Common grape-fern
Calverley Lodge to Moul Spring, along Powdermill Run, 29 May 1981, *Leberman & Mulvihill s.n.*; Byers #1, Laurel Run area, 5 Jul 1981, *Utech 81-090*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-291*. — Cool, moist woods.

Ophioglossum

***O. pusillum* Rafinesque**
(*O. vulgatum* Linnaeus var. *pseudopodum* (S.F. Blake) Farwell)
Adder's-tongue
Edge of swamp, 20 Jul 1966, *Richmond s.n.*; Iron Spring, 30 May 1966, *Henry & Leberman s.n.*; Johnston #1, along Phoebe Run, 27 May 1987, *Leberman & Mulvihill s.n.* — Open, wet areas.

Family Osmundaceae

Osmunda

***O. cinnamomea* Linnaeus**
Cinnamon fern
Museum area, along Powdermill Run, 27 Sep 1988, *Utech 88-1133*. — Swamps and stream banks (species also east Asia).

***O. claytoniana* Linnaeus**
Interrupted fern
Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-313*; Calverley Lodge to Moul Spring, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3273*. — Open woods (species also east Asia).

***O. regalis* Linnaeus var. *spectabilis* (Willdenow) A. Gray**
Royal fern
3 mi S of Rector, 7 Aug 1960, *M.G. Netting s.n.*; Coleman tract, between Greensburg Hunt Club and Powdermill Run, 21 May 1996, *Mulvihill & Leberman s.n.* — Swamps and moist areas (species also Eurasia).

Family Polypodiaceae

Polypodium

***P. virginianum* Linnaeus**
(*P. vulgare* Linnaeus var. *virginianum* (Linnaeus) D.C.

Eaton)
Polypody fern
Byers #1, Laurel Run area, 6 Sep 1987, *Utech 87-882.* — Moist, rocky woods (circumboreal).

Family DENNSTAEDTIACEAE

Dennstaedtia

***D. punctilobula* (Michaux) T. Moore**
Hay-scented fern
Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3268.* — Open, moist woods.

Pteridium

***P. aquilinum* (Linnaeus) Kuhn**
Bracken fern
11 Jul 1956, *Henry s.n.*; Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-550.* — Ruderal areas (species also Eurasia).

Family ADIANTACEAE

Adiantum

***A. pedatum* Linnaeus**
Maidenhair fern
Moul Spring, 6 Sep 1987, *Utech 87-890B.* — Cool, moist woods (species also east Asia).

Family ASPLENIACEAE

Asplenium

***A. montanum* Willdenow**
Mountain spleenwort
Cabin #3, along Powdermill Run, 23 Jul 1958, *Henry s.n.*; Calverley Lodge, 4 Apr 1959, *Richmond s.n.*; Cabin #3, 25 Aug 1990, *Isaac & Isaac 3277.* — Cliff crevices.

***A. platyneuron* (Linnaeus) Britton, Sterns & Poggenburg**
Ebony spleenwort
3.5 mi S of Rector, Aug 1959, *Henry s.n.*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-340*; Johnston #4, Lower strip-mine area, 10 Jul 1991, *Utech & Sato 91-706.* — Dry woods and rocky banks.

Athyrium

***A. filix-femina* (Linnaeus) Roth ex Mertens**
Lady fern
Cabin #5, 26 Aug 1990, *Isaac & Isaac 3285.* — Moist woods and meadows.

Camptosorus

***C. rhizophyllus* (Linnaeus) Link**
(*Asplenium rhizophyllum* Linnaeus)
Walking fern
Moul, Powdermill Run, 10 Jun 1984, *Leberman & Mulvihill s.n.*; Moul Spring, 12 May 1987, *Utech 87-071.* — Limestone outcrops and cool woods.

Cystopteris

***C. fragilis* (Linnaeus) Bernhardi**
Brittle fern; Fragile fern
Moul Spring, Powdermill Run, 10 Jun 1984, *Leberman & Mulvihill s.n.* — Moist woods (circumboreal).

Deparia

***D. acrostichoides* (Swartz) M. Kato**
(*Asplenium acrostichoides* Swartz; *Athyrium thelypteroides* (Michaux) Desvaux)
Silvery glade fern; Silvery spleenwort
3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Calverley Lodge to Moul Spring, along Powdermill Run, 26 Aug 1990, *Isaac & Isaac 3272.* — Rich, moist woods.

Diplazium

***D. pycnocarpon* (Sprengel) A. Braun**
(*Athyrium pycnocarpon* (Sprengel) Tidestrom)
Narrow-leaved glade fern
3 mi S of Rector, 9 Oct 1960, *Henry s.n.*; near Rector, 21 Jul 1962, *Ross 51.* — Cool woods.

Dryopteris

***D. × boottii* (Tuckerman) L. Underwood**
(*D. cristata* × *intermedia*)
Boott's wood fern
6 Jun 1981, *Leberman s.n.* — Moist woods.

***D. carthusiana* (Villars) H.P. Fuchs**
(*D. austriaca* (Jacquin) Woynar, Schinz & Thellung var. *spinulosa* (O.F. Mueller) Fiori; *D. spinulosa* (O.F. Mueller) Watt)
Spinulose wood fern; Toothed wood fern
Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-289*; Coleman tract, between Greensburg Hunt Club and Powdermill Run, 21 May 1996, *Mulvihill & Leberman s.n.* — Moist woods (circumboreal).

***D. cristata* (Linnaeus) A. Gray**
Crested wood fern
3 mi S of Rector, 15 Aug 1957, *Henry s.n.* — Marshes and wet woods (species also Europe).

***D. goldiana* (Hooker ex Goldie) A. Gray**
Goldie's wood fern
3.5 mi S of Rector, 19 Jul 1958, *Henry s.n.*; 3.5 mi S of Rector, 6–13 Sep 1959, *A.G. Netting s.n.*; Johnston #4, Lower strip-mine area, 10 Jul 1991, *Utech & Sato 91-705.* — Moist woods.

***D. intermedia* (Muhlenberg ex Willdenow) A. Gray**
(*D. austriaca* (Jacquin) Woynar, Schinz & Thellung var. *intermedia* (Muhlenberg ex Willdenow) C.V. Morton; *D spinulosa* (O.F. Mueller) Watt var. *intermedia* (Muhlenberg ex Willdenow) L. Underwood)
Evergreen wood fern; Fancy fern
3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Cabin #5, 26 Aug 1990, *Isaac & Isaac 3287.* — Moist woods and swamps.

***D. marginalis* (Linnaeus) A. Gray**
Marginal shield fern
3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.* — Woods and talus slopes.

***D. × triploidea* Wherry**
(*D. carthusiana* × *intermedia*)
Triploid wood fern
3.5 mi S of Rector, 23 Jul 1959, *Henry s.n.* — Moist woods.

Phegopteris

***P. hexagonoptera* (Michaux) Fee**
(*Dryopteris hexagonoptera* (Michaux) C. Christensen; *Thelypteris hexagonoptera* (Michaux) Nieuwland)
Broad beech fern

Calverley Lodge, 24 Jul 1958, *Henry s.n.*; Calverley Lodge to Moul Spring, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3271.* — Moist woods and thickets.

Polystichum

***P. acrostichoides* (Michaux) Schott**
Christmas fern

3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Calverley Lodge, Aug 1962, *Henry s.n.*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-290*; Moul Spring to Powdermill Run, 12 Jul 1982, *Utech 82-200*; Cabin #5, 26 Aug 1990, *Isaac & Isaac 3284.* — Woods and open thickets.

Thelypteris

***T. noveboracensis* (Linnaeus) Nieuwland**
(*Dryopteris noveboracensis* (Linnaeus) A. Gray)
New York fern

3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Cabin #5, 26 Aug 1990, *Isaac & Isaac 3286.* — Mixed woods and swamp margins.

***T. palustris* Schott**
(*Dryopteris thelypteris* (Linnaeus) A. Gray)
Marsh fern

Patchell area, 27 May 1984, *Leberman & Mulvihill s.n.*; Coleman tract, between Greensburg Hunt Club and Powdermill Run, 21 May 1996, *Mulvihill & Leberman s.n.* — Moist woods (circumboreal).

Family Onocleaceae

Onoclea

***O. sensibilis* Linnaeus**
Sensitive fern

3.5 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Swampy woods, 23 Sep 1967, *Henry s.n.*; Knupp #3, wooded edge of Friedline area, 12 Jul 1982, *Utech 82-238*; Byers #1, Laurel Run area, 26 Aug 1983, *Utech 83-559.* — Open woods and swamps (species also east Asia).

Division Pinophyta (Gymnosperms)

Family Taxaceae

Taxus

***T. cuspidata* Siebold & Zuccarini**
Asian yew

Headquarters area, 10 Sep 1988, *Utech 88-1111.* — Cultivated (east Asia).

Family Pinaceae

Larix

***L. decidua* P. Miller**
European larch

Headquarters area, 6 Sep 1987, *Utech 87-889.* — Cultivated (Europe).

Picea

***P. abies* (Linnaeus) H. Karsten**
Norway spruce

Nature Center area, 30 Sep 1984, *Utech 84-949*; Headquarters, 6 Sep 1987, *Utech 87-888.* — Cultivated (Europe).

***P. glauca* (Moench) Voss**
White spruce

Calverley Lodge, 22 Oct 1972, *Henry s.n.* — Native cultivar.

***P. pungens* Engelmann**
Colorado blue spruce

Assembly building area, 2 Jun 1995, *Utech 95-139.* — Native cultivar.

Pinus

***P. resinosa* Aiton**
Red pine; Norway pine

Knupp #3, Friedline homestead, 12 May 1995, *Utech 95-128.* — Native cultivar.

***P. strobus* Linnaeus**
Eastern white pine

Biobrook Shack area, 12 May 1987, *Utech 87-063.* — Dry, acid woods.

***P. sylvestris* Linnaeus**
Scots pine

Byers #1, Laurel Run area, 8 Aug 1983, *Utech & Ohara 83-522.* — Cultivated (Europe).

Tsuga

***T. canadensis* (Linnaeus) Carriere**
Eastern hemlock; Canada hemlock

Moul Spring, 26 Aug 1983, *Utech 83-536.* — Cool, rocky ravines.

Family Cupressaceae

Juniperis

***J. communis* Linnaeus**
Common juniper

Headquarters area, 10 Jul 1991, *Utech 91-710.* — Native cultivar.

***J. horizontalis* Moench**
Creeping juniper

Headquarters area, 10 Sep 1988, *Utech 88-1120.* — Native cultivar.

***J. virginiana* Linnaeus**
Red cedar

Knupp #3, Friedline area, 10 Sep 1988, *Utech 88-1108.* — Open, dry areas.

Thuja

***T. occidentalis* Linnaeus**
Arbor-vitae; White cedar

Byers #1, Laurel Run area, 8 Aug 1983, *Utech & Ohara 83-512.* — Native cultivar.

Division Magnoliophyta (Angiosperms; Flowering Plants)

Class Magnoliopsida (Dicotyledons)

Family Magnoliaceae

Liriodendron

***L. tulipifera* Linnaeus**
Tulip-tree; Yellow poplar

Cabin #4, 15 Jun 1965, *Henry s.n.*; Knupp #3, Laurel Run area, 28 Jul 1981, *Utech 81-390.* — Rich woods.

Magnolia

***M. acuminata* Linnaeus**
Cucumber-tree
Knupp #3, Friedline area, 1 Aug 1982, *Utech 82-379.* — Rich woods.

Family Annonaceae
Asimina

***A. triloba* (Linnaeus) Dunal**
Pawpaw
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1581*; Strip-mine area, Manor Camp road, 3 May 1991, *Leberman and Mulvihill s.n.* — Rich, moist woods.

Family Calycanthaceae
Calycanthus

***C. floridus* Linnaeus**
Carolina allspice; Strawberry-shrub
Nature Center area, Herb Garden, 21 May 1989, *Utech 89-178.* — Rich woods; native cultivar.

Family Lauraceae
Lindera

***L. benzoin* (Linnaeus) Blume**
Spicebush
Museum to Cabin #5, 30 Apr 1983, *Utech & Ohara 83-150*; Cabin area, 21 Apr 1985, *Nishida, Lua Hui-Kheng & Lange 751*; Museum area, 5 Sep 1988, *Utech 88-1067.* — Rich, moist woods.

Sassafras

***S. albidum* (Nuttall) Nees**
Sassafras
Knupp #3, Friedline area, 1 Aug 1982, *Utech 82-380.* — Open woods, old fields, and roadsides.

Family Aristolochiaceae
Aristolochia

***A. macrophylla* Lamarack**
Dutchman's-pipe; Pipe-vine
Marshall homestead, 2 Jun 1995, *Utech 95-137.* — Moist forest margins and thickets.

Asarum

***A. canadense* Linnaeus**
Wild ginger
4 mi S of Rector, 3 May 1956, *Henry s.n.*; Cabins #2-4, 12 Jul 1982, *Utech 82-203*; Headquarters, 9 May 1983, *Leberman s.n.* — Rich woods.

***A. europaeum* Linnaeus**
European ginger
Nature Center area, Herb Garden, 21 May 1989, *Utech 89-177.* — Cultivated (Europe).

Family Nymphaeaceae
Nymphaea

***N. odorata* Aiton**
Fragrant water-lily
Crisp Pond area, 23 Jun 1985, *Nishida & Keplinger 756.* — Quiet water.

Family Ranunculaceae
Actaea

***A. alba* (Linnaeus) P. Miller**
(*A. pachypoda* Elliott)
White baneberry; Doll's-eye
Moul Spring, 8 Aug 1983, *Utech & Ohara 83-513.* — Rich woods.

Anemone

***A. quinquefolia* Linnaeus**
Wood anemone
Along Powdermill Run, 3 May 1956, *Henry s.n.* — Moist woods.

***A. virginiana* Linnaeus**
Tall anemone; Windflower; Thimbleweed
Johnston #2, Weaver Mill road, 9 Jul 1981, *Utech 81-178*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-256.* — Dry or open woods.

Aquilegia

***A. canadensis* Linnaeus**
Canada columbine; Meetinghouses
Cabin #5, along Powdermill Run, 10 Jun 1984, *Utech 84-300*; Moul Spring, 24 May 1987, *Utech 87-125.* — Dry, rocky woods and cliffs.

***A. vulgaris* Linnaeus**
European columbine
Laurel Run area, 23 May 1993, *Utech 93-1013.* — Moist forest margins; naturalized (Eurasia).

Caltha

***C. palustris* Linnaeus**
Marsh marigold; Cowslip
Cabin #5, along Powdermill Run, 30 Apr 1983, *Utech & Ohara 83-147.* — Swamps, wet meadows and woods (circumboreal).

Cimicifuga

***C. racemosa* (Linnaeus) Nuttall**
Black snakeroot; Black cohosh
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-269.* — Woods.

Clematis

***C. × jackmanii* T. Moore**
Clematis
Cabin #3, 1 Aug 1982, *Utech 82-381.* — Cultivated (east Asia).

***C. virginiana* Linnaeus**
Virgin's-bower
Johnston #2, Lower strip-mine area, 26 Jul 1981, *Utech 81-375A*; Byers #1, Laurel Run area, 8 Aug 1983, *Utech & Ohara 83-526.* — Open, moist areas.

Coptis

***C. trifolia* (Linnaeus) Salisbury var. *groenlandica* (Oeder) Fassett**
(*C. groenlandica* (Oeder) Fernald)
Goldthread
Moul Spring, 26 Aug 1983, *Utech 83-540.* — Moist, mossy woods (species also east Asia).

Helleborus

***H. viridis* Linnaeus**
Green hellebore
Assembly Building to Calverley Lodge, 26 Mar 1968, *J.S. Netting s.n.* — Cultivated (Europe).

Hepatica

***H. acutiloba* de Candolle**
(*H. nobilis* P. Miller var. *acuta* (Pursh) Steyermark; *Anemone acutiloba* (de Candolle) G. Lawson)
Sharp-lobed hepatica; Liverleaf
Biobrook Shack area, 28 Apr 1987, *Utech 87-003*. — Moist woods.

***H. americana* (de Candolle) Ker-Gawler**
(*H. nobilis* P. Miller var. *obtusa* (Pursh) Steyermark; *Anemone americana* (de Candolle) H. Hara)
Round-lobed hepatica; Liverleaf
4 mi S of Rector, 3 May 1956, *Henry s.n.* — Upland woods.

Hydrastis

***H. canadensis* Linnaeus**
Goldenseal
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.*; Headquarters, 9 May 1983, *Leberman s.n.* — Rich woods.

Ranunculus

***R. abortivus* Linnaeus**
Kidney-leaved buttercup; Small-flowered crowfoot
Johnston #1, Strip-mine road, 20 May 1984, *Mulvihill & Leberman s.n.* — Fields and meadows; naturalized (Europe).

***R. acris* Linnaeus**
Meadow buttercup
Shawley tract, 16 Jun 1995, *Utech 95-155*. — Mesic fields and meadows; naturalized (Europe).

***R. allegheniensis* Britton**
Mountain crowfoot; Allegheny crowfoot
Johnston #4, Lower strip-mine area, 12 May 1985, *Utech 85-036*. — Rich, upland woods.

***R. bulbosus* Linnaeus**
Bulbous buttercup
Knupp #3, Friedline area, 2 Jun 1983, *Utech 83-304*; Cummings, Friedline area, 12 May 1985, *Utech 85-035*. — Fields and meadows; naturalized (Europe).

***R. hispidus* Michaux**
Hairy buttercup
Headquarters area, 25 Apr 1967, *Leberman s.n.*; Raven's Roost, 8 May 1988, *Utech 88-064*; Lower strip-mine area, 14 May 1993, *Utech 93-773*. — Woods.

***R. recurvatus* Poiret**
Hooked crowfoot
Friedline area, 2 May 1993, *Utech 93-606*. — Woods.

***R. repens* Linnaeus**
Creeping buttercup
Headquarters area, 21 May 1989, *Utech 89-180*. — Meadows, fields, and lawns; naturalized (Europe).

Thalictrum

***T. dioicum* Linnaeus**
Spring meadow-rue
Laurel Run area, 30 May 1994, *Utech 94-558*. — Wet, rocky slopes.

***T. pubescens* Pursh**
(*T. polygamum* Muhlenberg)
Tall meadow-rue
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-327*. — Wet meadows and stream banks.

***T. thalictroides* (Linnaeus) Eames & B. Boivin**
(*Anemonella thalictroides* (Linnaeus) Spach)
Rue-anenome
Johnston #1, Strip-mine and Spring roads, 20 May 1984, *Mulvihill & Leberman s.n.*; Moul Spring, 12 May 1987, *Utech 87-072*. — Rich, moist woods.

Family Berberidaceae

Berberis

***B. thunbergii* de Candolle**
Japanese barberry
Fiorina #3, Headquarters area, 20 Sep 1984, *Utech 84-948*. — Roadsides and thickets; naturalized cultivar (east Asia).

Caulophyllum

***C. thalictroides* (Linnaeus) Michaux**
Blue cohosh
Lower strip-mine area, Crisp Pond meadows, 16 Sep 1981, *Utech 81-476*. — Rich, moist woods.

Podophyllum

***P. peltatum* Linnaeus**
May-apple; Mandrake
6.3 km SE of Rector, 10 Apr 1979, *Utech 79-052*; Byers #1, Laurel Run area, 17 Jul 1981, *Utech 81-317*. — Open, moist woods.

Family Menispermaceae

Menispermum

***M. canadense* Linnaeus**
Moonseed
Johnston #4, Lower strip-mine area, 27 Sep 1988, *Utech 88-1134*. — Moist woods and thickets.

Family Papaveraceae

Chelidonium

***C. majus* Linnaeus**
Celandine; Swallow-root
Headquarters, 19 Jun 1968, *Leberman s.n.*; Byers #1, Laurel Run area, 5 Jul 1981, *Utech 81-138*; Knupp #3, Friedline area, 12 May 1985, *Utech 85-040*. — Open, moist areas; naturalized (Eurasia).

Macleaya

***M. cordata* (Willdenow) R. Brown**
Plume poppy; Tree celandine
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-379*. — Cultivated (east Asia).

Papaver

***P. orientale* Linnaeus**
Oriental poppy
Nature Center, 5 Jun 1994, *Utech 94-704*. — Cultivated (east Asia).

Sanguinaria

***S. canadensis* Linnaeus**
Bloodroot; Red puccoon
Moul Spring, 28 Apr 1987, *Utech 87-006*. — Rich, moist woods.

Family Fumariaceae

Corydalis

***C. flavula* (Rafinesque) de Candolle**
Yellow fumewort; Short-spurred corydalis; Yellow harlequin
Johnston #2, Lower strip-mine area, 12 Jun 1993, *Utech 93-1531*. — Open, moist areas.

Dicentra

***D. canadensis* (Goldie) Walpers**
Squirrel-corn
Moul Spring, 28 Apr 1987, *Utech 87-009*. — Rich woods.

***D. cucullaria* (Linnaeus) Bernhardi**
Dutchman's-breeches
Biobrook Shack area, 28 Apr 1987, *Utech 87-001*. — Rich woods.

Family Platanaceae

Platanus

***P. occidentalis* Linnaeus**
Sycamore; Buttonwood
Biobrook Shack area, 5 Sep 1988, *Utech 88-1066*. — Alluvial woods.

Family Hamamelidaceae

Hamamelis

***H. virginiana* Linnaeus**
Witch-hazel
Cabins #2-5, 1 Nov 1980, *Kiger 783*; Johnston #2, Weaver Mill road area, 9 Jul 1981, *Utech 81-181*; Byers #1, Laurel Run area, 26 Aug 1984, *Thompson & Loughlin 1895*. — Moist woods.

Family Ulmaceae

Ulmus

***U. americana* Linnaeus**
American elm; White elm
Knupp #3, Friedline area, 2 May 1993, *Utech 93-605*. — Moist woods.

***U. rubra* Muhlenberg**
Slippery elm; Red elm
Cummings, Friedline area, 23 Apr 1988, *Utech 88-062*. — Moist woods.

Family Moraceae

Maclura

***M. pomifera* (Rafinesque ex Sargent) Schneider**
Osage-orange
Cummings, Friedline area, 29 Sep 1989, *Utech 89-376*. — Introduced and adventive from Texas and Arkansas.

Morus

***M. alba* Linnaeus**
White mulberry
Knupp #3, Friedline area, 24 May 1987, *Utech 87-122*. — Rich, moist woods.

Family Cannabaceae

Humulus

***H. lupulus* Linnaeus**
Common hops; Brewer's hops
Museum area, 8 Aug 1969, *Leberman s.n.*; Museum area, head of Fern Path, 2 Jun 1995, *Utech 95-132*. — Native cultivar (species also Eurasia).

Family Urticaceae

Boehmeria

***B. cylindrica* (Linnaeus) Swartz**
False nettle; Bog-hemp
Cabin area, along Powdermill Run, 27 Sep 1988, *Utech 88-1131*. — Moist, forest margins.

Laportea

***L. canadensis* (Linnaeus) Weddell**
Wood-nettle
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-264*; Knupp #3, Friedline area, 24 Jul 1981, *Utech 81-361*. — Rich, moist woods.

Pilea

***P. pumila* (Linnaeus) A. Gray**
Clearweed; Richweed
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-261*. — Moist forest margins.

Urtica

***U. dioica* Linnaeus**
Stinging nettle
Knupp #3, Friedline area, 8 Sep 1991, *Utech 91-1575*. — Old fields and waste areas (species also Europe).

Family Juglandaceae

Carya

***C. cordiformis* (Wangenheim) K. Koch**
Bitternut hickory
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Woods.

***C. glabra* (P. Miller) Sweet**
Pignut hickory
Cummings, Friedline area, 8 Aug 1983, *Utech & Ohara 83-514*. — Upland woods.

***C. ovata* (P. Miller) K. Koch**
Shagbark hickory; Shellbark hickory
Headquarters area, 10 Oct 1959, *Henry s.n.*; Cabin #1, 21 Oct 1967, *Henry s.n.*; Nature Center area, 6 Sep 1987, *Utech 87-880*. — Moist woods.

Juglans

***J. cinerea* Linnaeus**
Butternut
Nature Center area, 6 Sep 1987, *Utech 87-880A*. — Rich, moist woods.

***J. nigra* Linnaeus**
Black walnut
Marshall tract, 21 Oct 1967, *Henry s.n.* — Rich, moist woods.

Family Myricaceae

Myrica

***M. pensylvanica* Loiseleur-Deslongchamps**
(*M. carolinensis* P. Miller)
Bayberry
Crisp Pond, Bird Blind Hut area, 10 Sep 1988, *Utech 88-1109*. — Native cultivar.

Family FAGACEAE

Castanea

***C. dentata* (Marshall) Borkhausen**
American chestnut
Calverley Lodge, 31 Jul 1992, *Utech 92-1996.* — Former forest dominant, stump sprouts.

***C. mollissima* Blume**
Chinese chestnut
Nature Center area, 30 Sep 1984, *Utech 84-950.* — Cultivated (east Asia).

Fagus

***F. grandifolia* Ehrhart**
American beech
Cabin #3, 1 Aug 1982, *Utech 82-384.* — Rich, upland woods.

Quercus

***Q. alba* Linnaeus**
White oak
Calverley Lodge, 10 Oct 1959, *Guilday s.n.* — Upland woods.

***Q. bicolor* Willdenow**
Swamp white oak
3.5 mi S of Rector, 22 Jul 1958, *Henry s.n.* — Moist woods.

***Q. coccinea* Muenchhausen**
Scarlet oak
Calverley Lodge, 25 Nov 1950, *Henry s.n.*; Johnston #2, Lower strip-mine area, 8 Aug 1983, *Utech & Ohara 83-529.* — Dry, upland woods.

***Q. ilicifolia* Wangenheim**
Shrub oak; Bear oak
Johnston #2, Lower strip-mine area, 26 Aug 1983, *Utech 83-534.* — Dry, rocky woods.

***Q. imbricaria* Michaux**
Shingle oak
Moist woods, 21 Jul 1963, *Ross 53*; Byers #1, Laurel Run area, 8 Aug 1983, *Utech & Ohara 83-527.* — Dry, upland woods.

***Q. prinus* Linnaeus**
(*Q. montana* Willdenow)
Rock chestnut oak
3.5 mi S of Rector, 26 Sep 1959, *Henry s.n.*; Cabin #3, 24 May 1987, *Utech 87-123.* — Dry, upland woods.

***Q. rubra* Linnaeus**
(*Q. borealis* F.A. Michaux)
Northern red oak
Cabin #3, 24 Oct 1959, *Henry s.n.*; Cabin #3, 6 Sep 1987, *Utech 87-878.* — Dry, upland woods.

***Q. velutina* Lamarck**
Black oak
Calverley Lodge, 25 Nov 1960, *Henry s.n.*; Knupp #3, Friedline area, 8 Aug 1983, *Utech & Ohara 83-531.* — Dry, upland woods.

Family BETULACEAE

Alnus

***A. serrulata* (Dryander ex Aiton) Willdenow**
Smooth alder
Moul Spring to Calverley Lodge, 28 Aug 1982, *Utech 82-401*; Crisp Pond area, 9 Sep 1988, *Mulvihill 47.* — Wet woods and stream banks.

Betula

***B. alleghaniensis* Britton**
Yellow birch
Museum area, Black birch trail, 2 Jun 1995, *Utech 95-134.* — Mesic, upland stream banks.

***B. lenta* Linnaeus**
Black birch; Sweet birch; Cherry birch
Moul Spring, along Powdermill Run, 26 Aug 1983, *Utech 83-541*; Calverley Lodge, along Powdermill Run, 13 May 1992, *Utech 92-503.* — Moist woods.

***B. pendula* Roth**
European white birch
Headquarters area, 10 Sep 1988, *Utech 88-1121.* — Cultivated (Europe).

Carpinus

***C. caroliniana* Walter**
Hornbeam; Blue-beech; Musclewood
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-278.* — Moist woods.

Corylus

***C. americana* Walter**
American hazelnut
Todd House area, 10 Sep 1988, *Utech 88-1110.* — Woods and thickets.

Ostrya

***O. virginiana* (P. Miller) K. Koch**
Hop-hornbeam; Ironwood
Todd House area, 7 Aug 1992, *Utech 92-2122.* — Moist woods and stream banks.

Family PHYTOLACCACEAE

Phytolacca

***P. americana* Linnaeus**
Pokeweed; Pokeberry
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-234.* — Fields, fence-rows, and moist woods.

Family CHENOPODIACEAE

Chenopodium

***C. album* Linnaeus**
Lamb's-quarters
Biobrook Shack, 24 Aug 1968, *Henry s.n.*; 6.5 mi SW of Rector, 28 Jul 1981, *Utech 81-382*; Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-547.* — Ruderal; naturalized (Eurasia).

Family AMARANTHACEAE

Amaranthus

***A. caudatus* Linnaeus**
Love-lies-bleeding
Knupp #3, Friedline area, 27 Sep 1988, *Utech 88-1128.* — Adventive cultivar (tropical America).

***A. lividus* Linnaeus**
(*A. blitum* Linnaeus)
Pigweed
Knupp #3, Friedline area, 24 Sep 1990, *Utech 90-*

1282. — Adventive weed (Eurasia).

***A. retroflexus* Linnaeus**
Rough pigweed; Green amaranth
Knupp #3, Friedline area, 28 Jul 1981, *Utech 81-383*; Knupp #3, Friedline area, 24 Sep 1990, *Utech 90-1283*. — Ruderal; naturalized (tropical America).

Family Portulacaceae

Claytonia

***C. caroliniana* Michaux**
Broad-leaved spring-beauty
4 mi S of Rector, 3 May 1956, *Henry s.n.*; Johnston #2, 27 Mar 1985, *Thompson, Nishida & Lua Hui-Kheng 2239*; Moul Spring, 28 Apr 1987, *Utech 87-010*. — Cool woods.

***C. virginica* Linnaeus**
Narrow-leaved spring-beauty
Headquarters area, 11 May 1984, *Leberman s.n.*; Biobrook Shack area, 28 Apr 1987, *Utech 87-002*. — Cool woods.

Portulaca

***P. oleracea* Linnaeus**
Purslane
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1074*. — Ruderal; naturalized (Asia).

Family Molluginaceae

Mollugo

***M. verticillata* Linnaeus**
Carpet-weed
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1073*. — Ruderal; naturalized (tropical America).

Family Caryophyllaceae

Arenaria

***A. serpyllifolia* Linnaeus**
Thyme-leaved sandwort
Johnston #2, Lower strip-mine area, 12 Jun 1993, *Utech 93-1532*. — Ruderal; naturalized (Eurasia).

Cerastium

***C. fontanum* Baumgarten**
(*C. vulgatum* Linnaeus)
Mouse-ear chickweed
Knupp #3, Friedline area, 4 Jul 1982, *Utech & Ohara 82-304*; Johnston #1, Iron Spring Swamp, 20 May 1984, *Mulvihill & Leberman s.n.* — Ruderal; naturalized (Eurasia).

Dianthus

***D. armeria* Linnaeus**
Deptford pink
Knupp #3, Friedline area, 4 Jul 1982, *Utech & Ohara 82-305*; Raven's Roost, 14 Jul 1985, *Thompson 2488*. — Ruderal; naturalized (Europe).

***D. deltoides* Linnaeus**
Maiden pink
Nature Center area, 11 Jun 1994, *Utech 94-880*. — Cultivated (Europe).

Moehringia

***M. lateriflora* (Linnaeus) Fenzl**
(*Arenaria lateriflora* Linnaeus)
Blunt-leaved sandwort
SE of Crisp Pond, 21 May 1970, *Leberman s.n.* — Woods and open areas (circumboreal).

Paronychia

***P. fastigiata* (Rafinesque) Fernald**
Forked chickweed; Whitlow-wort
3.5 mi S of Rector, 20 Sep 1958, *Henry s.n.* — Dry woods or openings.

Sagina

***S. procumbens* Linnaeus**
Pearlwort; Bird's-eye
Headquarters area, 10 Sep 1988, *Utech 88-1125*. — Moist and rocky areas (circumboreal).

Saponaria

***S. officinalis* Linnaeus**
Soapwort; Bouncing-Bet
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-331*. — Ruderal; naturalized (Eurasia).

Silene

***S. antirrhina* Linnaeus**
Sleepy catchfly
Johnston #2, Lower strip-mine area, 12 Jun 1993, *Utech 93-1533A*. — Sandy, waste areas.

***S. latifolia* Poiret ssp. *alba* (P. Miller) Greuter & Burdet**
(*Lychnis alba* P. Miller; *Silene alba* (P. Miller) Krause)
White campion; White cockle
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-338*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-186*. — Ruderal; naturalized (Europe).

***S. stellata* (Linnaeus) W.T. Aiton**
Starry campion; Widow's-frill
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-368*. — Woods.

***S. vulgaris* (Moench) Garcke**
(*S. cucubalus* Wibel)
Bladder campion; Maiden's-tears
Headquarters area, 10 Jul 1991, *Utech 91-708*. — Ruderal; naturalized (Europe).

Stellaria

***S. graminea* Linnaeus**
Common stitchwort
Headquarters area, 25 May 1984, *Mulvihill s.n.* — Damp woods and grassy areas (Europe).

***S. longifolia* Muhlenberg ex Willdenow**
(*Alsine longifolia* (Muhlenberg ex Willdenow) Britton)
Long-leaved chickweed; Long-leaved stitchwort
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-187*. — Damp woods and grassy areas (circumboreal).

***S. media* (Linnaeus) Villars**
(*Alsine media* Linnaeus)
Common chickweed
Knupp #3, Friedline area, 27 Sep 1988, *Utech 88-1129*. — Ruderal; naturalized (Eurasia).

***S. pubera* Michaux**
Starwort; Star chickweed; Great chickweed

Knupp #3, Friedline area, 2 May 1993, *Utech 93-607.* — Damp woods.

Family Polygonaceae

Polygonum

***P. arifolium* Linnaeus**
Halberd-leaved tearthumb
Johnston #2, Lower strip-mine area, Crisp Pond meadows, 16 Sep 1981, *Utech 81-479.* — Marshes and wet meadows.

***P. aviculare* Linnaeus**
Common knotweed
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-330.* — Ruderal; native and introduced (Eurasia).

***P. caespitosum* Blume var. *longisetum* (DeBruyn) A.N. Stewart**
Long-bristled smartweed
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-267*; Johnston #4, Lower strip-mine area, 14 Sep 1991, *Utech 91-1757.* — Ruderal; naturalized (east Asia).

***P. cilinode* Michaux**
Fringed black bindweed
Upper strip-mine area, 26 Aug 1995, *Utech 95-913.* — Meadows, fields, and waste areas.

***P. convolvulus* Linnaeus**
Black bindweed
Headquarters area, 9 Sep 1970, *Leberman s.n.*; Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-304*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-344.* — Meadows, fields, and waste areas.

***P. cuspidatum* Siebold & Zuccarini**
Japanese knotweed; Mexican bamboo
Johnston #2, Lower strip-mine area, 28 Aug 1982, *Utech 82-404.* — Naturalized cultivar (east Asia).

***P. hydropiper* Linnaeus**
Water-pepper; Common smartweed
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-545.* — Wet areas; naturalized (Europe).

***P. pensylvanicum* Linnaeus**
Pennsylvania smartweed; Smooth pinkweed
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-546.* — Fields and waste areas.

***P. persicaria* Linnaeus**
Lady's-thumb; Heart's-ease
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-544.* — Ruderal; naturalized (Europe).

***P. sachalinense* F.W. Schmidt ex Maximowicz**
Giant knotweed
Calverley Lodge, 18 Jul 1959, *Henry s.n.* — Naturalized (east Asia).

***P. sagittatum* Linnaeus**
Arrow-leaved tearthumb
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-403.* — Marshes and wet meadows.

***P. scandens* Linnaeus**
False buckwheat
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-417.* — Moist woods and thickets.

***P. virginianum* Linnaeus**
(*Tovara virginiana* (Linnaeus) Rafinesque)
Jumpseed; Virginia knotweed
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-335*; Raven's Roost, 14 Jul 1985, *Thompson 2487.* — Moist woods.

Rheum

***R. rhaponticum* Linnaeus**
(*R. rhabarbicum* Linnaeus)
Rhubarb
Herb Garden, 20 Jun 1996, Utech 96-019. — Cultivated (Eurasia).

Rumex

***R. acetosella* Linnaeus**
Sheep sorrel; Field sorrel; Sourgrass
Knupp #3, Friedline area, 4 Jul 1982, *Utech & Ohara 82-303*; Johnston #1, Strip-mine area, 26 May 1984, *Mulvihill & Leberman s.n.* — Ruderal; naturalized (Eurasia).

***R. crispus* Linnaeus**
Curly dock; Sour dock
Knupp #3, Friedline area, 3 Jul 1991, *Utech 91-599.* — Ruderal; naturalized (Europe).

***R. obtusifolius* Linnaeus**
Bitter dock; Blunt-leaved dock
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-334.* — Ruderal; naturalized (Europe).

Family Paeonaceae

Paeonia

***P. lactiflora* Pallas**
Peony
Raven's Roost, 5 Jun 1994, *Utech 94-705.* — Cultivated (east Asia).

Family Plumbaginaceae

Armeria

***A. maritima* Willdenow**
Sea-thrift; Sea-pink
Nature Center area, Herb Garden, 19 Jun 1994, *Utech 94-1162.* — Cultivated (Eurasia).

Goniolimon

***G. tatarium* (Linnaeus) Boissier**
German statice
Nature Center area, Herb Garden, 15 Jul 1995, *Utech 95-174.* — Cultivated species (Europe).

Family Hypericaceae (Clusiaceae; Guttiferae)

Hypericum

***H. gentianoides* (Linnaeus) Britton, Sterns & Poggenburg**
Orange-grass; Pineweed
Knupp #3, Friedline area, 28 Jul 1981, *Utech 81-384*; Johnston #2, Lower strip-mine area, 16 Jul 1995, *Utech 95-179.* — Open, sandy areas.

***H. mutilum* Linnaeus**
Dwarf St.-John's-wort

Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-356*; Johnston #2, Lower strip-mine area, 28 Aug 1982, *Utech 82-405*. — Open, wet areas.

***H. perforatum* Linnaeus**
Common St.-John's-wort
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-231*. — Ruderal; naturalized (Europe).

***H. prolificum* Linnaeus**
Shrubby St.-John's-wort
Upper strip-mine area, 9 Sep 1995, *Utech 95-917*. — Open, wet, sandy areas.

***H. punctatum* Lamarck**
Spotted St.-John's-wort
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-255*; Headquarters, 22 Jul 1982, *Mulvihill s.n.* — Open woods and fields.

Triadenum

***T. virginicum* (Linnaeus) Rafinesque**
(*Hypericum virginicum* Linnaeus)
Marsh St.-John's-wort
Byers #1, Laurel Run area, 26 Aug 1983, *Utech 83-558*. — Marshes and shorelines.

Family Tiliaceae
Tilia

***T. americana* Linnaeus**
American basswood; Linden
Byers #1, Laurel Run area, 8 Aug 1983, *Utech & Ohara 83-528*. — Moist woods.

***T. heterophylla* Ventenat**
(*T. americana* Linnaeus var. *heterophylla* (Ventenat) Loudon)
White basswood
13 Oct 1962, *Henry s.n.*; Headquarters, 14 Nov 1965, *M.G. Netting s.n.*; Headquarters, 10 Sep 1988, *Utech 88-1112*. — Moist woods.

Family Malavaceae
Abutilon

***A. theophrasti* Medicus**
Velvet-leaf; Pie-marker; Butter-print
Cabin area, 12 Aug 1957, *Henry s.n.*; Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-554*. — Fields and waste areas (south Asia).

Hibiscus

***H. syriacus* Linnaeus**
Rose-of-Sharon
Cummings, Friedline area, 14 Aug 1994, *Utech 94-1978*. — Long persisting cultivar (east Asia).

***H. trionum* Linnaeus**
Flower-of-an-hour
Knupp #2-#3, Friedline area, 28 Jul 1981, *Utech 81-381*. — Ruderal (Europe).

Malva

***M. moschata* Linnaeus**
Musk mallow; Rose mallow
Cummings, Friedline area, 30 Jun 1984, *Utech 84-449*. — Ruderal; naturalized (Europe).

***M. neglecta* Wallroth**
Cheeses; Common mallow
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1072*. — Ruderal; naturalized (Eurasia).

Family Droseraceae
Drosera

***D. rotundifolia* Linnaeus**
Round-leaved sundew
Moul Spring, 26 Aug 1983, *Utech 83-539*. — Bogs and swamps (circumboreal).

Family Violaceae
Hybanthus

***H. concolor* (T.F. Forster) Sprengel**
Green violet
Moist woods, 4 Jun 1961, *Ross 10*; Johnston #1, Mine and Spring roads, 20 May 1984, *Leberman & Mulvihill s.n.*; S of Manor Club ravine, 12 Jun 1996, *Mulvihill s.n.* — Rich woods and ravines.

Viola

***V. bicolor* Pursh**
(*V. rafinesquii* Greene; *V. kitaibeliana* Roemer & Schultes var. *rafinesquii* (Greene) Fernald)
Field pansy
3 mi S of Rector, 29 May 1965, *Henry s.n.*; Biobrook Shack area, 30 Apr 1983, *Utech & Ohara 83-146*. — Fields, open woods, and roadsides.

***V. blanda* Willdenow**
Sweet white violet
4 mi S of Rector, 3 May 1956, *Henry s.n.*; Patchell area, 11 May 1983, *Leberman & Mulvihill s.n.* — Cool, coniferous woods.

***V. canadensis* Linnaeus**
Tall white violet; Canada violet
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Cool, moist woods.

***V.* × *cordifolia* (Nuttall) Schweinitz**
(*V. hisutula* × *sororia*)
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Woods.

***V. cucullata* Aiton**
Marsh blue violet
4 mi S of Rector, 24 May 1956, *Henry s.n.*; 3 mi SE of Rector, 25 May 1956, *Henry s.n.*; Friedline area, 29 May 1982, *Leberman & Mulvihill s.n.*; Johnston #2, Lower strip-mine area, 12 May 1985, *Utech 85-043*; Calverley Lodge, along Powdermill Run, 7 May 1987, *Mulvihill & Leberman 24*. — Moist woods and swamps.

***V.* × *eclipes* H.E. Ballard**
(*V. conspera* × *striata*)
Cabin #3, 31 May 1958, *Henry s.n.*; Todd Manor area, 17 May 1986, *Mulvihill & Leberman 4*. — Woods and meadows.

***V. hastata* Michaux**
Halberd-leaved yellow violet
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.*; Museum to Cabin #5, 30 Apr 1983, *Utech & Ohara 83-149*; Patchell area, 4 May 1983, *Mulvihill & Leberman s.n.* — Rich woods.

***V. labradorica* Schrank**
(*V. conspera* Reichenbach)
Hooked-spur violet
Cabin #3, 31 May 1958, *Henry s.n.*; Cabin #3, 6 May 1959, *Henry s.n.* — Fields, open woods, and roadsides.

***V. macloskeyi* F. Lloyd ssp. *pallens* (Banks ex de Candolle) M.S. Baker**
(*V. pallens* (Banks ex de Candolle) Brainerd)
Wild sweet white violet
Patchell area, 10 May 1983, *Mulvihill & Leberman s.n.* — Cool, moist woods.

***V. palmata* Linnaeus**
(*V. triloba* Schweinitz)
Wood violet; Early blue violet
3 mi S of Rector, 9 May 1957, *Henry s.n*; 3 mi S of Rector, 2 Jul 1960, *Henry s.n.*; Middle strip-mine area, 20 May 1983, *Leberman & Mulvihill s.n.* — Moist woods.

***V. primulifolia* Linnaeus**
Primrose-leaved violet
Friedline area, 14 Jun 1982, *Mulvihill & Leberman s.n.* — Moist meadows and stream banks.

***V. pubescens* Aiton**
(*V. eriocarpa* Schweinitz; *V. pensylvanica* Michaux)
Downy yellow violet; Smooth yellow violet
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.*; 3 mi S of Rector, 2 Jul 1960, *Henry s.n.*; Museum to Cabin #5, 30 Apr 1983, *Utech 83-148*; Patchell area, 11 May 1983, *Mulvihill & Leberman s.n.*; Headquarters, Strip-mine road, 20 May 1984, *Mulvihill & Leberman s.n.*; Powdermill Run tributary, 7 May 1987, *Mulvihill & Leberman 25.* — Rich woods and meadows.

***V. rostrata* Pursh**
Long-spurred violet
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.*; Patchell area, Laurel Run, 10 May 1983, *Mulvihill & Leberman s.n.* — Rich woods and slopes.

***V. rotundifolia* Michaux**
Round-leaved yellow violet
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.* — Coniferous woods.

***V. sagittata* Aiton**
(*V. emarginata* (Nuttall) LeConte; *V. fimbriatula* Small)
Arrow-leaved violet; Ovate-leaved violet
3 mi S of Rector, Strip-mine area, 10 Aug 1957, *Henry s.n.*; 3 mi S of Rector, 10 Aug 1957, *Henry s.n.*; 3.5 mi S of Rector, 20 Sep 1958, *Henry s.n.*; 3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Friedline area, 10 May 1983, *Leberman & Mulvihill s.n.*; Johnston #1, Upper strip-mine area, 13 May 1984, *Mulvihill s.n.* — Moist stream banks and wet meadows.

***V. sororia* Willdenow**
(*V. papilionacea* Pursh)
Common blue violet; Dooryard violet
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.*; Johnston #1, Strip-mine road, 20 May 1984, *Mulvihill & Leberman s.n.*; Nature Center area, 18 May 1986, *Mulvihill, Leberman & Wisner 6.* — Rich woods, moist meadows and lawns.

***V. striata* Aiton**
Creamy violet; Striped violet
Cabin #3, 15 May 1958, *Henry s.n.*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-227.* — Rich woods and stream banks.

Family Cucurbitaceae

Echinocystis

***E. lobata* (Michaux) Torrey & A. Gray**
Prickly cucumber; Balsam-apple
Byers #1, Laurel Run area, 15 Sep 1981, *Utech 81-455.* — Thickets and open, moist areas.

Sicyos

***S. angulatus* Linnaeus**
Bur cucumber
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1071.* — Moist forest margins.

Family Salicaceae

Populus

***P. grandidentata* Michaux**
Large-toothed aspen
Headquarters, Weaver Mill road area, 10 Sep 1988, *Utech 88-1107.* — Open, upland woods.

***P. tremuloides* Michaux**
Trembling aspen; Quaking aspen
Headquarters area, 10 Jul 1991, *Utech 91-707.* — Cutover woods and forest margins.

Salix

***S. babylonica* Linnaeus**
Weeping willow
Calverley Lodge to Assembly Building, along Powdermill Run, 10 Sep 1988, *Utech 88-1106.* — Cultivated (east Asia; introduced via Europe).

***S. eriocephala* Michaux**
(*S. rigida* Muhlenberg)
Heart-leaved willow
3.5 mi S of Rector, 26 Apr 1958, *Henry s.n.*; Crisp Pond, 28 Jul 1968, *Henry s.n.* — Stream banks and low areas.

***S. sericea* Marshall**
Silky willow
3.5 mi S of Rector, 5 May 1962, *Henry s.n.*; 3 mi S of Rector, 27 Apr 1962, *Henry s.n.*; 3 mi S of Rector, 5 May 1962, *Henry s.n.*; Crisp Pond area, 21 Apr 1985, *Nishida, Lua Hui-Kheng & Lange 754.* — Moist, rocky ground.

***S.* × *subseriea* (Andersson) Schneider**
(*S. gracilis* × *petiolaris*)
Crisp Pond area, 21 May 1989, *Utech 89-170.* — Open, wet areas.

Family Brassicaceae
(Cruciferae)

Alliaria

***A. petiolata* (M. Bieberstein) Cavara & Grande**
(*A. officinalis* Andrzejowski ex M. Bieberstein)
Garlic-mustard; Hedge-garlic
Headquarters, 3 Jun 1987, *Utech 87-184.* — Ruderal; naturalized (Europe).

Arabidopsis

***A. thaliana* (Linnaeus) Heynhold**
Mouse-ear cress
Johnston #2, Lower strip-mine area, 2 Jun 1995, *Utech 95-141.* — Ruderal; naturalized (Europe).

Arabis

***A. laevigata* (Muhlenberg) Poiret**
Smooth rock-cress
Strip mine area, 4 May 1970, *Leberman s.n.*; Knupp #3, Friedline area, 6 May 1983, *Utech 83-112.* — Woods and hillsides.

Armoracia

***A. rusticana* (Lamarck) P.G. Gaertner, B. Meyer & J. Scherbius**
Horse-radish
Herb Garden, 2 Jun 1995, *Utech 95-131.* — Cultivated (Europe).

Barbarea

***B. vulgaris* R. Brown**
Yellow rocket; Winter cress
Knupp #3, Friedline area, 2 Jun 1983, *Utech 83-301*; Johnston #1, 20 May 1984, *Mulvihill & Leberman s.n.*; Fiorina #3, Crisp Pond area, 12 May 1985, *Utech 85-039.* — Ruderal; naturalized (Eurasia).

Brassica

***B. kaber* (de Candolle) L.C. Wheeler**
(*Sinapis arvensis* Linnaeus)
Charlock; Wild mustard
Johnston #2, Lower strip-mine area, 19 Jun 1994, *Utech 94-1164.* — Ruderal; naturalized (Europe).

Capsella

***C. bursa-pastoris* (Linnaeus) Medicus**
Shepherd's-purse
Headquarters, 13 May 1992, *Utech 92-502.* — Ruderal; naturalized (Europe).

Cardamine

***C. bulbosa* (Schreber ex Muhlenberg) Britton, Sterns & Poggenburg**
(*C. rhomboidea* (Persoon) de Candolle)
Bitter cress; Spring cress
Todd House, along Spring road, 20 May 1984, *Mulvihill & Leberman s.n.* — Wet woods.

***C. concatenata* (Michaux) O.E. Schulz**
(*Dentaria laciniata* Muhlenberg ex Willdenow)
Cut-leaved toothwort; Pepper-root
Moul Spring, 28 Apr 1987, *Utech 87-004.* — Rich woods.

***C. diphylla* (Michaux) A. Wood**
(*Dentaria diphylla* Linnaeus)
Two-leaved toothwort; Pepper-root
4 mi S of Rector, 3 May 1956, *Henry s.n.* — Rich woods.

***C. hirsuta* Linnaeus**
Hairy bitter-cress; Hairy rock-cress
Headquarters, 13 Apr 1968, *Leberman s.n.*; Biobrook Shack area, 30 Apr 1983, *Utech & Ohara 83-143*; Headquarters, 3 Apr 1988, *Utech 88-056.* — Naturalized (Eurasia).

***C. parviflora* Linnaeus**
Small-flowered bitter-cress
3.5 mi S of Rector, 10 Jun 1963, *Henry s.n.* — Open, dry areas.

***C. pensylvanica* Muhlenberg ex Willdenow**
Pennsylvania bitter-cress; Trailing bitter-cress
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Swamps and wet woods.

***C. rotundifolia* Michaux**
Mountain water-cress
Cabin #5, 9 May 1957, *Henry s.n.*; Patchell area, 27 May 1984, *Mulvihill & Leberman s.n.* — Swamps and open, wet areas.

Hesperis

***H. matronalis* Linnaeus**
Dame's-rocket
Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-194.* — Naturalized cultivar (Eurasia).

Lepidium

***L. campestre* (Linnaeus) R. Brown**
Field cress
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-228*; Knupp #3, Friedline area, 2 Jun 1983, *Utech 83-302*; Fiorina #3, Crisp Pond area, 12 May 1985, *Utech 85-038.* — Ruderal; naturalized (Europe).

***L. virginicum* Linnaeus**
Pepper-grass; Poor-man's-pepper
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1076*; Headquarters, 10 Oct 1988, *Utech 88-1141.* — Open waste areas.

Lunaria

***L. annua* Linnaeus**
Honesty; Money-plant
Cabin area, 19 May 1984, *Mulvihill & Leberman s.n.* — Adventive cultivar (Europe).

Nasturium

***N. officinale* R. Brown**
(*Rorippa nasturtium-aquaticum* (Linnaeus) Hayek)
Common water-cress
Biobrook Shack area, 28 Jun 1980, *Utech 80-133*; Moul Spring, along Powdermill Run, 12 Jul 1982, *Utech 82-191*; Moul Spring, 12 May 1987, *Utech 87-073.* — Clear, quiet water; naturalized (Eurasia).

Raphanus

***R. raphanistrum* Linnaeus**
White charlock
Knupp #3, Friedline area, 4 Jul 1982, *Utech & Ohara 82-308.* — Ruderal (Eurasia).

Rorippa

***R. palustris* (Linnaeus) Besser ssp. *fernaldiana* (Butters & Abbe) Jonsell**
(*R. islandica* (Oeder) Borbas var. *fernaldiana* Butters & Abbe)
Yellow water-cress
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1077.* — Moist, low areas (circumboreal).

Thlaspi

***T. arvense* Linnaeus**
Field penny-cress
Cabin #3, 13 May 1992, *Utech 92-500A.* — Ruderal (Europe).

Family Ericaceae

Epigaea

***E. repens* Linnaeus**
Trailing arbutus
3 mi S of Rector, Powdermill Run area, 7 Aug 1960, *A.G. Netting s.n.* — Rocky, acid woods.

Gaultheria

***G. procumbens* Linnaeus**
Wintergreen; Teaberry; Checkerberry
Moul Spring, 26 Aug 1983, *Utech 83-537.* — Woods.

Gaylussacia

***G. baccata* (Wangenheim) K. Koch**
Black huckleberry
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Dry woods and thickets.

Kalmia

***K. angustifolia* Linnaeus**
Bog laurel; Sheep-laurel; Lambkill
Nature Center area, Herb Garden, 19 Jun 1994, *Utech 94-1158.* — Native cultivar.

***K. latifolia* Linnaeus**
Mountain laurel
Calverley Lodge, 13 Jul 1982, *Utech & Ohara 82-237.* — Dry woods.

Pieris

***P. japonica* (Thunberg) D. Don**
Pieris
Headquarters, 8 May 1988, *Utech 88-066.* — Cultivated (east Asia).

Rhododendron

***R. arborescens* (Pursh) Torrey**
Smooth azalea
Anderson Tract, along Phoebe Run, 4 Jun 1997, *Leberman & Mulvihill s.n.* — Dry rocky woods.

***R. maximum* Linnaeus**
Rosebay; Great white laurel
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Calverley Lodge, 30 Jun 1984, *Utech 84-459.* — Wet woods.

***R. periclymenoides* (Michaux) Shinners**
(*R. nudiflorum* (Linnaeus) Torrey)
Pink azalea; Pinxter-flower; Election-pink
Todd House area, 24 May 1984, *Leberman s.n.*; Biobrook Shack area, 12 May 1987, *Utech 87-060*; Moul Spring, 24 May 1987, *Utech 87-126.* — Dry woods.

Vaccinium

***V. pallidum* Aiton**
(*V. vacillans* Torrey)
Low-bush blueberry
Biobrook Shack area, 12 May 1987, *Utech 87-059.* — Dry woods and old fields.

***V. stamineum* Linnaeus**
Deerberry; Squaw huckleberry
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Dry woods.

Family Pyrolaceae

Chimaphila

***C. maculata* (Linnaeus) Pursh**
Spotted wintergreen; Pipsissewa
Johnston #4, Lower strip-mine area, 20 Mar 1988, *Mulvihill & Leberman 50.* — Dry, sandy woods (circumboreal).

Family Monotropaceae

Monotropa

***M. uniflora* Linnaeus**
Indian-pipe
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-286.* — Rich woods.

Family Primulaceae

Anagallis

***A. arvensis* Linnaeus**
Scarlet pimpernel
Byers #1, Laurel Run area along PA 381, 3 Jul 1995, *Utech 95-169.* — Mesic waste areas; naturalized (Eurasia).

Lysimachia

***L. ciliata* Linnaeus**
Fringed loosestrife
Cabin #5, along Powdermill Run, 5 Jul 1981, *Utech 81-109*; Cabin #2, along Powdermill Run, 12 Jul 1981, *Utech 81-277*; Raven's Roost, 14 Jul 1985, *Thompson 2490.* — Swamps, marshes, and stream banks.

***L. clethroides* Duby**
Gooseneck loosestrife
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1084.* — Cultivated (east Asia).

***L. quadrifolia* Linnaeus**
Whorled loosestrife; Four-flowered loosestrife
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 780*; Moul Spring to Powdermill Run, 2 Jul 1981, *Utech 81-009.* — Open, upland woods.

***L. terrestris* (Linnaeus) Britton, Sterns & Poggenburg**
Swamp-candles; Bulbil loosestrife
Johnston #4, Lower strip-mine area, 30 Jun 1984. *Utech 84-450.* — Swamps and wet areas.

Trientalis

***T. borealis* Rafinesque**
Star-flower
Moul Spring to Powdermill Run, 12 Jul 1982, *Utech 82-199A.* — Rich woods.

Family Hydrangeaceae

Deutzia

***D. scabra* Thunberg**
Deutzia
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Calverley Lodge, 30 Jun 1991, *Utech 91-594.* — Cultivated (east Asia).

Hydrangea

***H. arborescens* Linnaeus**
Wild hydrangea; Seven-bark
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Moul Spring, along Powdermill Run, 2 Jul 1981, *Utech 81-011*; Raven's Roost, 14 Jul 1985, *Thompson 2486*. — Rocky woods and slopes.

***H. paniculata* Siebold**
Peegee hydrangea
Crisp Pond, Bird Blind Hut area, 10 Sep 1988, *Utech 88-1119*; Crisp Pond, Bird Blind Hut area, 24 Sep 1990, *Utech 90-1277*. — Cultivated (east Asia).

Philadelphus

***P. coronarius* Linnaeus**
Mock-orange
Headquarters, 3 Jun 1987, *Utech 87-183*. — Cultivated (Eurasia).

Family Grossulariaceae

Ribes

***R. cynosbati* Linnaeus**
Dogberry; Prickly gooseberry
Moul Spring area, 5 Jun 1994, *Utech 94-707*. — Moist, rocky woods.

***R. hirtellum* Michaux**
Wild gooseberry
3.5 mi S of Rector, 11 Sep 1974, *M.G. Netting s.n.*; Friedline area, 14 Jun 1982, *Leberman & Mulvihill s.n.* — Rocky woods and cliffs.

***R. sativum* Syme**
(*R. rubrum* Linnaeus)
Red currant
Nature Center area, 23 Apr 1988, *Utech 88-059*; Raven's Roost to Shawley homestead, 16 May 1994, *Utech 94-302*. — Cultivated (Eurasia).

Family Crassulaceae

Sedum

***S. sarmentosum* Bunge**
Common orpine
Byers #1, Laurel Run area, 16 Jun 1995, *Utech 95-154*. — Escaped cultivar (east Asia).

***S. telephium* Linnaeus**
Live-forever; Garden Orpine
Raven's Roost, 29 Sep 1995, *Utech 95-938*. — Cultivated (Europe).

***S. ternatum* Michaux**
Wild stonecrop
Johnston #2, Lower strip-mine area, 12 May 1985, *Utech 85-041*. — Rich, moist woods.

Family Saxifragaceae

Chrysosplenium

***C. americanum* Schweinitz ex Hooker**
Golden saxifrage; Water-mat; Water-carpet
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Springy or muddy areas.

Heuchera

***H. americana* Linnaeus**
Alum-root
Johnston #2, Lower strip-mine area, 4 Jul 1981, *Utech 81-081*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-188*. — Dry, upland woods.

***H. sanguinea* Engelmann**
Coral bells
Nature Center area, Herb Garden, 23 May 1993, *Utech 93-1012*. — Native cultivar (western North America).

Mitella

***M. diphylla* Linnaeus**
Bishop's-cap; Two-leaved miterwort
Headquarters, 9 May 1983, *Leberman s.n.*; Johnston #1, Strip-mine road, 20 May 1985, *Mulvihill & Leberman s.n.*; Moul Spring, 28 Apr 1987, *Utech 87-007*; Moul Spring, 12 May 1987, *Utech 87-070*. — Rich, moist woods.

Penthorum

***P. sedoides* Linnaeus**
Ditch stonecrop
Headquarters, 17 Aug 1972, *Leberman s.n.* — Marshes and muddy areas.

Saxifraga

***S. micranthidifolia* (Haworth) Steudel**
Lettuce-leaved saxifrage; Mountain-lettuce
4 mi S of Rector, 11 Jul 1956, *Henry s.n.* — Wet cliffs.

***S. pensylvanica* Linnaeus**
Swamp saxifrage
Moul Spring to Calverley Lodge, 3 Jun 1987, *Utech 87-186*. — Swamps and wet woods.

***S. virginiensis* Michaux**
Early saxifrage
Lower strip-mine area, 14 May 1993, *Utech 93-772*. — Wooded rock-ledges.

Tiarella

***T. cordifolia* Linnaeus**
Foamflower; False miterwort
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Patchell area, along Laurel Run, 11 May 1983, *Mulvihill s.n.* — Rich woods.

Family Rosaceae

Agrimonia

***A. gryposepala* Wallroth**
Hairy agrimony; Harvest-lice
Johnston #2, Weaver Mill road area, 9 Jul 1981, *Utech 81-179*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-292*. — Open woods.

***A. parviflora* Aiton**
Small-flowered agrimony
Moist thicket, 12 Aug 1962, *Ross 62*; Headquarters, Crisp Pond area, 5 Sep 1988, *Utech 88-1069*. — Damp forest margins.

Alchemilla

***A. vulgaris* Linnaeus**
Lady's-mantle
Nature Center area, Herb Garden, 6 Aug 1989, *Utech 89-186*. — Cultivated (Europe).

Amelanchier

***A. arborea* (F.A. Michaux) Fernald**
Common serviceberry; Shadbush; Common juneberry
4 mi S of Rector, along Powdermill Run, 31 May 1956, *Henry s.n.*; Strip-mine road, 21 Apr 1985, *Nishida, Lua Hui-Kheng & Lange 752*; Moul Spring, 28 Apr 1987, *Utech 87-011.* — Dry, upland woods.

***A. laevis* Wiegand**
Smooth juneberry; Allegheny juneberry; Smooth serviceberry
Knupp #3, Friedline area, 12 May 1995, *Utech 95-129.* — Cool, upland woods.

Aruncus

***A. dioicus* (Walter) Fernald**
Goat's-beard
Calverley Lodge to Moul Spring, 3 Jun 1987, *Utech 87-188.* — Moist, forest margins.

Chaenomeles

***C. lagenaria* (Loiseleur-Deslongschamps) Koidzumi**
(*C. speciosa* (Sweet) Nakai)
Flowering quince
Headquarters, 23 Apr 1988, *Utech 88-062.* — Cultivated (east Asia).

Cotoneaster

***C. apiculatus* Rehder & E.H. Wilson**
Cranberry cotoneaster
Crisp Pond, Bird Blind Hut area, 24 Sep 1990, *Utech 90-1278.* — Cultivated (Eurasia).

Crataegus

***C. crus-galli* Linnaeus**
Cockspur hawthorn
Headquarters, 10 Sep 1988, *Utech 88-1117.* — Meadows and forest margins.

***C. pruinosa* (Wendland f.) K. Koch**
Frosted hawthorn
Headquarters, 25 May 1984, *Mulvihill s.n.*; Crisp Pond, Bird Blind Hut area, 21 May 1989, *Utech 89-174.* — Meadows and forest margins.

Filipendula

***F. rubra* (Hill) B. Robinson**
Queen-of-the-prairie
Knupp #3, Friedline area, 3 Jul 1981, *Utech 81-059.* — Meadows and forest margins.

***F. ulmaria* (Linnaeus) Maximowicz**
Queen-of-the-meadow
Marshall tract, 8 Jul 1967, *J.S. Netting s.n.* — Cultivated (Eurasia).

Fragaria

***F. × ananassa* Duchesne**
(*F. chiloensis* Duchesne var. *ananassa* Bailey; *F. chiloensis* × *virginiana*)
Garden strawberry
Nature Center area, Herb Garden, 10 Sep 1988, *Utech 88-1100.* — Cultivated (hybrid origin).

***F. virginiana* P. Miller**
Wild strawberry
Biobrook Shack area, 30 Apr 1983, *Utech & Ohara 83-153.* — Open, sandy areas.

Geum

***G. canadense* Jacquin**
White avens
Headquarters, Todd House area, 3 Jul 1991, *Utech 91-604.* — Woods.

***G. vernum* (Rafinesque) Torrey & A. Gray**
Spring avens
Johnston #2, Lower strip-mine area, 7 May 1993, *Utech 93-740.* — Moist woods.

Malus

***M. × adstringens* Zabel**
(*M. baccata* × *pumila*)
Hopa crab-apple
Headquarters, 10 Sep 1988, *Utech 88-1118.* — Cultivated (hybrid origin).

***M. coronaria* (Linnaeus) P. Miller**
(*Pyrus coronaria* Linnaeus)
Wild crab-apple
Headquarters, 25 May 1984, *Mulvihill s.n.*; Biobrook Shack area, 12 May 1987, *Utech 87-062.* — Native cultivar.

***M. pumila* P. Miller**
(*M. domestica* Borkhausen; *Pyrus malus* Linnaeus)
Apple
Headquarters, 7 May 1993, *Utech 93-742.* — Cultivated (Eurasia).

Physocarpus

***P. opulifolius* (Linnaeus) Maximowicz**
Ninebark
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-371.* — Stream banks.

Porteranthus

***P. trifoliatus* (Linnaeus) Britton**
(*Gillenia trifoliata* (Linnaeus) Moench)
Bowman's-root; Indian-physic
Johnston #4, Lower strip-mine area, 14 Jun 1984, *Mulvihill s.n.*; Cabin #5, along Powdermill Run, 30 Jun 1984, *Utech 84-453*; Calverley Lodge, 3 Jun 1987, *Utech 87-185.* — Dry, upland woods.

Potentilla

***P. canadensis* Linnaeus**
Five-fingers; Cinquefoil
Cabin #3, 13 May 1992, *Utech 92-501.* — Dry woods and fields.

***P. norvegica* Linnaeus**
Three-leaved cinquefoil; Strawberry-weed
Headquarters, 10 Sep 1988, *Utech 88-1114.* — Ruderal; naturalized (species also Eurasia).

***P. recta* Linnaeus**
Rough-fruited cinquefoil; Sulfur five-fingers
Friedline area, 14 Jun 1982, *Mulvihill & Leberman s.n.* — Ruderal; naturalized (Europe).

***P. simplex* Michaux**
Old-field cinquefoil; Old-field five-fingers

Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-196*; Johnston #4, Lower strip-mine area, 12 May 1985, *Utech 85-037*. — Dry woods and fields.

Prunus

***P. americana* Marshall**
Wild plum
Headquarters area, 12 May 1995, Utech 95-130. — Forest margins to fence-rows.

***P. avium* (Linnaeus) Linnaeus**
Sweet cherry
Cummings, Friedline area, 8 May 1988, *Utech 88-068*. — Adventive cultivar (Eurasia).

***P. munsoniana* Wight & Hedrick**
Wild goose plum
Headquarters, 3 May 1991, *Leberman & Mulvihill s.n.* — Moist woods and thickets.

***P. pensylvanica* Linnaeus f.**
Pin cherry; Fire cherry
Friedline area, 6 May 1983, *Mulvihill s.n.*; Cummings, Friedline area, 8 May 1988, *Utech 88-069*. — Forest margins.

***P. serotina* Ehrhart**
Wild black cherry
Cummings, Friedline area, 8 Aug 1983, *Utech & Ohara 83-515*. — Woods, thickets, and roadsides.

***P. virginiana* Linnaeus**
Choke cherry
Fiorina #3, Crisp Pond area, 3 Jul 1991, *Utech 91-605*. — Moist, forest margins and thickets.

Rosa

***R. canina* Linnaeus**
Dog rose
Cummings, Friedline area, 12 Jun 1993, *Utech 93-1530*. — Roadside and open areas; naturalized cultivar (Europe).

***R. carolina* Linnaeus**
Pasture rose
Johnston #4, Lower strip-mine area, 5 Jul 1981, *Utech 81-144*; Friedline area, 14 Jun 1982, *Leberman & Mulvihill s.n.* — Upland woods and meadows.

***R. multiflora* Thunberg ex J.A. Murray**
Multiflora rose
Raven's Roost, 12 Jul 1982, *Utech & Ohara 82-212*. — Naturalized cultivar (east Asia).

***R. rugosa* Thunberg**
Japanese rose
Nature Center area, Herb Garden, 30 Jun 1991, *Utech 91-592*. — Cultivated (east Asia).

Rubus

***R. allegheniensis* Bailey**
Common blackberry
3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 21 Jul 1962, *Henry s.n.* — Woods.

***R. hispidus* Linnaeus**
Swamp dewberry
3 mi S of Rector, 20 Jun 1957, *Henry s.n.* — Woods.

***R. interioris* Bailey**
3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 21 Jul 1962, *Henry s.n.* — Woods.

***R. occidentalis* Linnaeus**
Black raspberry; Black-cap
Marshall tract, 31 May 1984, *Leberman & Mulvihill s.n.* — Woods, thickets, and meadows.

***R. odoratus* Linnaeus**
Purple-flowering raspberry; Thimbleberry
Moul Spring to Powdermill Run, 2 Jul 1981, *Utech 81-010*. — Moist forest margins.

***R. pensilvanicus* Poiret**
Pennsylvania blackberry
3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 26 May 1962, *Henry s.n.*; 3 mi S of Rector, 21 Jul 1962, *Henry s.n.* — Woods.

Sanguisorba

***S. minor* Scopoli**
Salad burnet
Nature Center area, Herb Garden, 19 Jun 1994, *Utech 94-1161*. — Cultivated (Eurasia).

Sorbus

***S. aucuparia* Linnaeus**
(*Pyrus aucuparia* (Linnaeus) Gaertner)
European mountain-ash; Rowan-tree
Fiorina #3, Crisp Pond area, 26 Aug 1983, *Utech 83-563*. — Cultivated (Europe).

Spiraea

***S. alba* DuRoi**
Meadow-sweet
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-308*. — Wet meadows and swamps.

***S. japonica* Linnaeus f.**
Japanese spiraea
Calverley Lodge, 30 Jun 1991, *Utech 91-593*. — Naturalized cultivar (east Asia).

***S. prunifolia* Siebold & Zuccarini**
Bridal-wreath spiraea
Headquarters, 19 May 1984, *Mulvihill s.n.* — Naturalized cultivar (east Asia).

***S.* × *vanhouttei* (C. Briot) Zabel**
(*S. trilobata* × *cantoniensis*)
Vanhoutte's spiraea
Knupp #3, Friedline area, 14 May 1992, *Utech 92-556*. — Cultivated (Europe).

Waldsteinia

***W. fragarioides* (Michaux) Trattinnick**
Barren-strawberry
Moul Spring, 14 May 1984, *Utech 84-066A*. — Moist upland woods.

Family FABACEAE (Leguminosae)

Amphicarpaea

***A. bracteata* (Linnaeus) Fernald**
Hog-peanut
Crisp Pond area, Summer 1969, *Leberman s.n.*; Cabin #3, along Powdermill Run, 28 Aug 1982, *Utech & Ohara 82-400.* — Woods and thickets.

Apios

***A. americana* Medicus**
Ground-nut
3 mi S of Rector, 10 Aug 1957, *Henry s.n.* — Moist woods.

Cercis

***C. canadensis* Linnaeus**
Redbud; Judas-tree
Headquarters, 6 Sep 1987, *Utech 87-890.* — Native cultivar.

Coronilla

***C. varia* Linnaeus**
Crown-vetch
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-215*; Johnston #2, Lower strip-mine area, 30 Jun 1984, *Utech 84-456.* — Old fields and roadsides; naturalized (Eurasia).

Desmodium

***D. nudiflorum* (Linnaeus) de Candolle**
Naked-flowered tick-trefoil
3 mi S of Rector, 10 Aug 1957, *Henry s.n.* — Rich woods.

***D. paniculatum* (Linnaeus) de Candolle**
Beggar-ticks; Paniculate tick-trefoil
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-402.* — Dry woods.

***D. perplexum* Schubert**
Tick-clover; Perplexing tick-trefoil
Cabin #3, 4 Jul 1982, *Utech & Ohara 82-399.* — Dry woods.

Gleditsia

***G. tricanthos* Linnaeus**
Honey locust
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-560.* — Rich, moist woods and native cultivar.

Lathyrus

***L. latifolius* Linnaeus**
Perennial sweetpea; Everlasting pea
Johnston #2, Lower strip-mine area, 30 June 1984, *Utech 84-457.* — Naturalized cultivar (Asia).

Lespedeza

***L. bicolor* Turczaninow**
Bicolor lespedeza
Strip-mine area, 9 Sep 1967, *J.S. Netting s.n.*; 3 mi S of Rector, 30 Sep 1962, *Henry s.n.* — Cultivated (east Asia).

***L. cuneata* (Dumont-Courset) G. Don**
Sericea lespedeza
Strip-mine area, 30 Sep 1962, *Henry s.n.* — Cultivated (east Asia).

***L. hirta* (Linnaeus) Hornemann**
Hairy bush-clover
3 mi S of Rector, 10 Aug 1957, *Henry s.n.* — Dry areas.

***L. intermedia* (S. Watson) Britton**
Wand bush-clover
3 mi S of Rector, 10 Aug 1957, *Henry s.n.*; Knupp #3, Friedline area, 1 Sep 1984, *Utech 84-932.* — Dry upland woods.

***L. repens* (Linnaeus) Barton**
Creeping bush-clover
3 mi S of Rector, 10 Aug 1957, *Henry s.n.* — Dry woods and fields.

Lotus

***L. corniculatus* Linnaeus**
Bird's-foot trefoil
Biobrook Shack area, 6 Jun 1980, *Utech 80-117*; Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-369.* — Ruderal; naturalized (Europe).

Medicago

***M. lupulina* Linnaeus**
Black medick
Knupp #3, Friedline area, 30 Jul 1991, *Utech 91-853.* — Agricultural adventive (Eurasia).

***M. sativa* Linnaeus**
Alfalfa
Knupp #3, Friedline area, 3 Jul 1991, *Utech 91-603.* — Agricultural cultivar; naturalized (Eurasia).

Melilotus

***M. alba* Medic**
White sweet-clover
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-226.* — Roadsides and waste areas; naturalized (Eurasia).

***M. officinalis* (Linnaeus) Pallas**
Yellow sweet-clover
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-352.* — Roadsides and waste areas; naturalized (Eurasia).

Robinia

***R. hispida* Linnaeus**
Bristly locust; Rose-acacia
Johnston #4, Lower strip-mine area, 30 Jun 1984, *Utech 84-452.* — Dry woods and open, waste areas.

***R. pseudoacacia* Linnaeus**
Black locust
Cummings, Friedline area, 24 May 1987, *Utech 87-124.* — Dry woods, thickets, and roadsides.

Trifolium

***T. aureum* Pollich**
(*T. agrarium* Linnaeus)
Yellow hop-clover; Large hop-clover
Knupp #3, Friedline fields area, 16 Jun 1995, *Utech 95-153.* — Ruderal; naturalized (Eurasia).

***T. campestre* Schreber**
(*T. procumbens* Linnaeus)
Pinnate hop-clover

Lower strip-mine area, 19 Jun 1994, *Utech 94-1168.* — Ruderal; naturalized (Europe and north Africa).

***T. hybridum* Linnaeus**
Alsike clover
Knupp #3, Friedline area, 5 Jul 1984, *Utech 84-505.* — Agricultural cultivar; naturalized (Eurasia).

***T. pratense* Linnaeus**
Red clover
Byers #1, Laurel Run area, 17 Jul 1981, *Utech 81-320.* — Agricultural cultivar; naturalized (Europe).

***T. repens* Linnaeus**
White clover; Dutch clover
Cabin #3, 26 Aug 1983, *Utech 83-562.* — Roadsides and lawns; naturalized (Eurasia).

Vicia

***V. dasycarpa* Tenore**
(*V. villosa* Roth ssp. *varia* (Host) Corbiere)
Hairy vetch
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-213.* — Roadsides and fields; naturalized (Europe).

Wisteria

***W. floribunda* (Willdenow) de Candolle**
Japanese wisteria
Marshall homestead, 2 Jun 1995, *Utech 95-138.* — Cultivated (east Asia).

Family Elaeagnaceae
Elaeagnus

***E. umbellata* Thunberg**
Autumn olive
Headquarters, 25 May 1984, *Mulvihill s.n.*; Johnston #2, Lower strip-mine area, 13 May 1991, *Utech 91-051.* — Naturalized cultivar (east Asia).

Family Haloragaceae
Myriophyllum

***M. spicatum* Linnaeus**
Eurasian water-milfoil
Fiorina #3, Crisp Pond area, 10 Sep 1988, *Utech 88-1115.* — Ponds and waterways (Eurasia).

Family Lythraceae
Cuphea

***C. viscosissima* Jacquin**
(*C. petiolata* (Linnaeus) Koehne)
Blue waxweed; Clammy cuphea
Knupp #3, Friedline area, 28 Aug 1982, *Utech 82-396.* — Open, dry areas.

Lythrum

***L. salicaria* Linnaeus**
Purple loosestrife
Nature Center area, Butterfly Garden, 14 Aug 1994, *Utech 94-1977.* — Cultivated (Eurasia).

Family Thymelaeaceae
Dirca

***D. palustris* Linnaeus**
Leatherwood
4 mi S of Rector, along Powdermill Run, 3 May 1956, *Henry s.n.* — Rich, moist woods.

Family Onagraceae
Chamerion

***C. angustifolium* (Linnaeus) Holub**
(*Epilobium angustifolium* Linnaeus)
Fireweed; Great willow-herb
Moul Spring, Powdermill Run area, 5 Jul 1981, *Utech 81-101.* — Open areas (circumboreal).

Circaea

***C. alpina* Linnaeus**
Enchanter's nightshade
Moul Spring, 22 Jun 1982, *Leberman & Mulvihill s.n.* — Moist woods.

***C.* × *intermedia* Ehrhart**
(*C. alpina* Linnaeus ssp. *alpina* × *lutetiana* Linnaeus ssp. *canadensis* (Linnaeus) Ascherson & Magnus)
Calverley Lodge, 18 Jul 1957, *Henry s.n.* — Moist woods (native hybrid).

***C. lutetiana* Linnaeus ssp. *canadensis* (Linnaeus) Ascherson & Magnus**
(*C. quadrisulcata* (Maximowicz) Franchet & Savatier)
Enchanter's nightshade
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Johnston #2, Weaver Mill road, 9 Jul 1981, *Utech 81-180*; Johnston #4, Lower strip-mine area, 11 Jul 1981, *Utech 81-241*; Raven's Roost, 14 Jul 1985, *Thompson 2491.* — Moist woods (species also east Asia).

Epilobium

***E. coloratum* Biehler**
Purple-leaved willow-herb
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-397.* — Open, wet areas.

Gaura

***G. biennis* Linnaeus**
Gaura
Cabin #5, along Powdermill Run, 29 Jul 1981, *Utech 81-395*; Byers #1, Laurel Run area, 15 Sep 1981, *Utech 81-459.* — Open woods and fields.

Ludwigia

***L. alternifolia* Linnaeus**
False loosestrife; Water-primrose; Seedbox
Crisp Pond area, 6 Sep 1987, *Utech 87-876.* — Wet areas.

***L. palustris* (Linnaeus) Elliott**
Marsh-purslane
Fiorina #3, Crisp Pond area, 10 Sep 1988, *Utech 88-1104.* — Shallow water (species also Eurasia).

Oenothera

***O. biennis* Linnaeus**
Evening-primrose
Knupp #3, Friedline area, 28 Jul 1981, *Utech 81-380*; Cabins #4-5, 29 Jul 1981, *Utech 81-396*; Knupp #3, Friedline area, 14 Sep 1991, *Utech 91-1761.* — Open, waste areas.

***O. fruticosa* Linnaeus ssp. *glauca* (Michaux) Straley**
(*O. tetragona* Roth)
Sundrops
3 mi S of Rector, 20 Jun 1957, *Henry s.n.*; Cabin #5,

along Powdermill Run, 12 Jul 1981, *Utech 81-279.* — Open woods, meadows, and fields.

***O. perennis* Linnaeus**
Sundrops
Johnston #2, Crisp Pond to Lower strip-mine area, 2 Jul 1993, *Utech 93-2095.* — Open woods, meadows, and fields.

Family Nyssaceae
Nyssa

***N. sylvatica* Marshall**
Tupelo; Black-gum
Johnston #4, Lower strip-mine area, 6 Aug 1989, *Utech 89-183.* — Wet woods.

Family Cornaceae
Cornus

***C. amomum* P. Miller**
(*C. obliqua* Rafinesque)
Kinnikinick; Silky dogwood
3 mi S of Rector, 20 Jun 1957, *Henry s.n.*; 3 mi S of Rector, 24 Aug 1957, *Henry s.n.*; Byers #1, Laurel Run area, 3 Jul 1981, *Utech 81-110*; Lower strip-mine to Crisp Pond meadows, 16 Sep 1981, *Utech 81-475*; Johnston #2, Crisp Pond area, 30 Jun 1984, *Utech 84-448.* — Wet woods and stream banks.

***C. florida* Linnaeus**
Flowering dogwood
Museum to Cabin #5, 8 Aug 1983, *Utech & Ohara 83-519.* — Woods.

***C. kousa* Hance**
Korean dogwood
Headquarters, 30 Jun 1984, *Utech 84-458.* — Cultivated (east Asia).

***C. racemosa* Lamarck**
Panicled dogwood; Swamp dogwood
Headquarters area, 2 Jun 1995, *Utech 95-133.* — Mesic thickets and meadows.

***C. sericea* Linnaeus**
(*C. stolonifera* Michaux)
Red-osier dogwood
Lewis area, 31 May 1965, *Henry s.n.*; Johnston #2, Crisp Pond area, 30 Jun 1984, *Utech 84-448A.* — Wet woods.

Family Santalaceae
Pyrularia

***P. pubera* Michaux**
Buffalo-nut; Oil-nut
3 mi S of Rector, 31 May 1960, *Henry s.n.*; Anderson tract, Manor Club along Phoebe Run, 5 Sep 1997, *Utech 97-931.* — Oak-hickory woods.

Family Celastraceae
Celastrus

***C. orbiculatus* Thunberg**
Oriental bittersweet
Museum area, along Powdermill Run, 27 Sep 1988, *Utech 88-1132*; Headquarters area, 30 May 1994, *Utech 94-560.* — Cultivated (east Asia).

Euonymus

***E. atropurpureus* Jacquin**
Burning-bush; Wahoo
S of Rector, 2 Jul 1965, *Leberman s.n.* — Moist woods.

***E. fortunei* (Turczaninow) Handel-Mazzetti**
Winter-creeper
Museum area, 4 Jul 1982, *Utech 82-309.* — Cultivated (east Asia).

***E. obovatus* Nuttall**
Running strawberry-bush
Lower strip-mine area, 10 Apr 1968, *Leberman s.n.* — Rich, moist woods.

Family Aquifoliaceae
Ilex

***I. verticillata* (Linnaeus) A. Gray**
Winterberry; Black alder
Moul Spring, 10 Jun 1984, *Leberman & Mulvihill s.n.* — Wet woods and swamps.

Family Buxaceae
Pachysandra

***P. terminalis* Siebold & Zuccarini**
Pachysandra; Japanese spurge
Raven's Roost, 14 Jul 1985, *Thompson 2492.* — Cultivated (east Asia).

Family Euphorbiaceae
Acalypha

***A. rhomboidea* Rafinesque**
(*A. virginica* Linnaeus var. *rhomboidea* (Rafinesque) Cooperrider)
Cooperleaf; Three-seeded mercury
Headquarters, 10 Sep 1988, *Utech 88-1113*; Headquarters, 27 Sep 1988, *Utech 88-1137.* — Open woods, roadsides, and waste areas.

Euphorbia

***E. corollata* Linnaeus**
Flowering spurge
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-341.* — Dry woods and old fields.

***E. cyparissias* Linnaeus**
Cypress spurge; Cemetery-plant
Knupp #3, Friedline area, 14 May 1993, *Utech 93-777.* — Cemeteries, roadsides, and waste areas; naturalized (Eurasia).

***E. maculata* Linnaeus**
(*Chamaesyce maculata* (Linnaeus) Small)
Spotted spurge; Milk-purslane; Wartweed
3.5 mi S of Rector, Aug 1959, *Henry s.n.*; Johnston #2, Lower strip-mine area, 28 Aug 1982, *Utech & Ohara 82-406.* — Ruderal (Eurasia).

***E. vermiculata* Rafinesque**
(*Chamaesyce vermiculata* (Rafinesque) House)
Hairy spurge
Headquarters, 31 Jul 1992, *Utech 92-3315.* — Ruderal (Eurasia).

Family Vitaceae
Parenthocissus

***P. quinquefolia* (Linnaeus) Planchon**
Woodbine; Virginia-creeper
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-222.* — Moist woods and thickets.

Vitis

***V. aestivalis* Michaux**
Summer grape; Pigeon grape
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.*; Knupp #2, Laurel Run area, 28 Jul 1981, *Utech 81-385*; Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-218.* — Open woods, thickets, and roadsides.

***V. labrusca* Linnaeus**
Fox grape
Headquarters, 10 Sep 1988, *Utech 88-1116.* — Moist forest margins and thickets.

Family Linaceae
Linum

***L. striatum* Walter**
Ridged yellow flax
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-273.* — Wet woods and swamps.

***L. virginianum* Linnaeus**
Slender yellow flax
3 mi S of Rector, 2 Jul 1960, *Henry s.n.* — Upland woods.

Family Polygalaceae
Polygala

***P. sanguinea* Linnaeus**
Blood milkwort; Rose milkwort
Upper strip-mine area, 8 Aug 1970, *Leberman s.n.*; Johnston #1, Iron Spring Swamp, 8 Sep 1984, *Mulvihill & Leberman s.n.* — Woods and open, moist areas.

***P. verticillata* Linnaeus**
Whorled milkwort
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-358.* — Woods and open, moist areas.

Family Aceraceae
Acer

***A. negundo* Linnaeus**
Box-elder; Ash-leaved maple
Cabins #2-4, 28 Aug 1982, *Utech 82-402.* — Alluvial woods.

***A. pensylvanicum* Linnaeus**
Striped maple; Moosewood
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Moul Spring, along Powdermill Run, 2 Jul 1981, *Utech 81-014*; Friedline to Patchell, along Laurel Run, 10 May 1983, *Leberman & Mulvihill s.n.* — Moist woods.

***A. rubrum* Linnaeus**
Red maple; Swamp maple
Strip mine road, 21 Apr 1985, *Nishida, Lua Hui-Kheng & Lange s.n.*; Moul Spring, 24 May 1987, *Utech 87-127.* — Moist, upland woods and swamps.

***A. saccharinum* Linnaeus**
Silver maple; Soft maple
Johnston #2, Lower strip-mine area, 13 May 1991, *Utech 91-052.* — Moist woods and stream banks.

***A. saccharum* Marshall**
(*A. nigrum* F.A. Michaux)
Sugar maple
Along Powdermill Run, 3 May 1956, *Henry s.n.*; Assembly Building, Powdermill Run area, 8 Aug 1983, *Utech & Ohara 83-510.* — Rich woods.

***A. spicatum* Lamarck**
Mountain maple
Moul Spring, along Powdermill Run, 10 Aug 1966, *Utech 96-411.* — Moist woods.

Family Anacardiaceae
Rhus

***R. copallina* Linnaeus**
Dwarf sumac; Shining sumac
Above Middle strip-mine area, 29 Jul 1969, *Leberman s.n.* — Open, dry areas.

***R. glabra* Linnaeus**
Smooth sumac
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-276.* — Upland forest margins and old fields.

***R. typhina* Linnaeus**
Staghorn sumac
Johnston #2, Weaver Mill road, 9 Jul 1981, *Utech 81-182.* — Open, dry areas.

Toxicodendron

***T. radicans* (Linnaeus) O. Kuntze**
(*Rhus radicans* Linnaeus)
Poison-ivy
Cabin #3, 12 Jul 1982, *Utech 82-230.* — Woods and open areas (species also east Asia).

Family Simarubaceae
Ailanthus

***A. altissima* (P. Miller) Swingle**
Tree-of-heaven
Shawley tract, along Powdermill Run, 30 Jun 1991, *Utech 91-054.* — Ruderal; naturalized (east Asia).

Family Rutaceae
Ruta

***R. graveolens* Linnaeus**
Rue; Herb-of-Grace
Nature Center area, Herb Garden, 6 Aug 1989, *Utech 89-187.* — Cultivated (Europe).

Family Oxalidaceae
Oxalis

***O. acetosella* Linnaeus**
(*O. montana* Rafinesque)
Wood-shamrock; Common wood-sorrel
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Moul Spring, along Powdermill Run, 12 Jul 1982, *Utech 82-192.* — Rich, moist woods (species also Eurasia).

***O. grandis* Small**
Wood-sorrel
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; 3 mi S of

Rector, 2 Jul 1960, *Henry s.n.* — Rich woods.

***O. stricta* Linnaeus**
(*O. europaea* Jordan)
Yellow wood-sorrel
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-263.* — Ruderal (Eurasia).

***O. violacea* Linnaeus**
Violet wood-sorrel
Calverley Lodge to Moul Spring, 2 Jun 1995, *Utech 95-136.* — Moist rich woods.

Family Geraniaceae

Geranium

***G. maculatum* Linnaeus**
Wood geranium
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Moul Spring, 28 Apr 1987, *Utech 87-005.* — Woods.

***G. robertianum* Linnaeus**
Herb-Robert
Nature Center area, 10 Sep 1988, *Utech 88-1099.* — Naturalized cultivar (species also Eurasia).

***G. sibiricum* Linnaeus**
Siberian cranesbill
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-553.* — Ruderal (east Asia).

Family Limnanthaceae

Floerkea

***F. proserpinacoides* Willdenow**
False-mermaid
Biobrook Shack area, along Powdermill Run, 28 Apr 1992, *Utech 92-095A.* — Rich, alluvial woods.

Family Tropaeolaceae

Tropaeolum

***T. majus* Linnaeus**
Common nasturium
Nature Center area, Herb Garden, 15 Jul 1995, *Utech 95-173.* — Cultivated (South America).

Family Balsaminaceae

Impatiens

***I. capensis* Meerburgh**
(*I. biflora* Walter)
Orange touch-me-not; Spotted jewelweed
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-303*; Cabins #2-3, 24 Aug 1984, *Mulvihill s.n.* — Moist woods and stream banks.

***I. pallida* Nuttall**
Yellow touch-me-not; Pale jewelweed
Cabin #2, 15 Sep 1967, *Leberman s.n.*; Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-314.* — Wet woods and meadows.

Family Araliaceae

Aralia

***A. nudicaulis* Linnaeus**
Wild sarsaparilla
Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-315.* — Woods.

***A. racemosa* Linnaeus**
Spikenard; Life-of-man
Johnston #4, Lower strip-mine area, 14 Sep 1991, *Utech 91-1756.* — Rich woods.

***A. spinosa* Linnaeus**
Devil's-walking-stick; Hercules'-club
Johnston #2, Lower strip-mine area, 1 Aug 1982, *Utech 82-385.* — Moist woods.

Hedera

***H. helix* Linnaeus**
English ivy
Headquarters, 27 Sep 1988, *Utech 88-1138.* — Cultivated (Europe).

Panax

***P. quinquefolius* Linnaeus**
American ginseng
Moul Spring, 29 Sep 1989, *Utech 89-375.* — Rich woods.

***P. trifolius* Linnaeus**
Dwarf ginseng
Calverley Lodge, 27 Apr 1957, *Henry s.n.*; Museum to Cabin #5, 30 Apr 1983, *Utech & Ohara 83-142.* — Rich woods and alluvial flats.

Family Apiaceae (Umbelliferae)

Aegopodium

***A. podagraria* Linnaeus**
Goutweed; Bishop's-weed
Headquarters area, 11 Jun 1994, *Utech 94-876.* — Naturalized cultivar (Eurasia).

Anethum

***A. graveolens* Linnaeus**
Dill
Nature Center area, Herb Garden, 10 Sep 1988, *Utech 88-1101.* — Cultivated (Europe).

Angelica

***A. triquinata* Michaux**
Mountain-angelica
Cummings, Friedline area, 31 Aug 1991, *Utech 91-1432.* — Rich, upland woods.

Cicuta

***C. maculata* Linnaeus**
Water-hemlock; Spotted cowbane; Beaver-poison
Byers #1, Laurel Run area, 3 Jul 1981, *Utech 81-074.* — Poisonous herb; swamps and marshes.

Conium

***C. maculatum* Linnaeus**
Poison-hemlock
Johnston #2, Lower strip-mine area, 12 Jun 1993, *Utech 93-1529.* — Poisonous weed; naturalized (Eurasia).

Cryptotaenia

***C. canadensis* (Linnaeus) de Candolle**
Honewort; Wild chervil
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Johnston #4, Lower strip-mine area, 11 Jul 1981, *Utech 81-243.* — Woods.

Daucus

***D. carota* Linnaeus**
Queen-Anne's-lace; Wild carrot
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-229.* — Ruderal; naturalized (Eurasia).

Foeniculum

***F. vulgare* P. Miller**
Fennel
Nature Center area, Herb Garden, 15 Jul 1995, *Utech 95-172.* — Cultivated (Europe).

Heracleum

***H. lanatum* Michaux**
(*H. maximum* Bartram)
Cow-parsnip
Byers #1, Laurel Run area, 12 Jul 1982, *Utech 82-234.* — Wet meadows and open areas (species also east Asia).

Hydrocotyle

***H. americana* Linnaeus**
Marsh pennywort; Navelwort
3 mi S of Rector, 20 Jun 1957, *Henry s.n.* — Moist, low areas.

Myrrhis

***M. odorata* (Linnaeus) Scopoli**
Sweet-cicely
Nature Center area, Herb Garden, 19 Jun 1994, *Utech 94-1157.* — Cultivated (Europe).

Osmorhiza

***O. claytonii* (Michaux) C.B. Clarke**
Short-styled sweet-cicely
Byers #1, Laurel Run area, 12 Jul 1982, *Utech 82-224.* — Moist woods.

***O. longistylis* (Torrey) de Candolle**
Long-styled sweet-cicely
Byers #1, Laurel Run area, 12 Jul 1982, *Utech 82-225.* — Moist woods.

Pastinaca

***P. sativa* Linnaeus**
Wild parsnip
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-227.* — Ruderal; naturalized (Eurasia).

Sanicula

***S. canadensis* Linnaeus**
Canada sanicle; Common snake-root
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-415A.* — Woods.

***S. gregaria* Bicknell**
(*S. odorata* (Rafinesque) Pryer & Phillippe)
Yellow-flowered sanicle; Fragrant snake-root
3.5 mi S of Reetor, 20 Jun 1959, *Henry s.n.* — Woods.

Thaspium

***T. barbinode* (Michaux) Nuttall**
Meadow-parsnip
Wooded edge of Friedline tract, 20 Jun 1997, *Utech 97-325.* — Woods and meadows.

***T. trifoliatum* (Linnaeus) A. Gray**
Smooth meadow-parsnip
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-258.* — Woods.

Zizia

***Z. aurea* (Linnaeus) W.D.J. Koch**
Golden alexanders; Golden meadow-parsnip
Knupp #3, Friedline area, 30 May 1994, *Utech 94-559.* — Woods and thicket margins.

Family Loganiaceae

Buddleia

***B. davidii* Franchet**
Butterfly-bush
Nature Center area, 26 Aug 1995, *Utech 95-914.* — Cultivated (east Asia).

Family Gentianaceae

Gentiana

***G. andrewsii* Grisebach**
Bottle gentian; Closed gentian
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-410.* — Wet woods and meadows.

***G. clausa* Rafinesque**
Meadow bottle gentian
Calverley Lodge, 21 Sep 1956, *Henry s.n.* — Moist woods and meadows.

Sabatia

***S. angularis* (Linnaeus) Pursh**
Marsh-pink
Marshall tract, 4 Sep 1966, *J.S. Netting s.n.* — Open woods and meadows.

Family Apocynaceae

Apocynum

***A. androsaemifolium* Linnaeus**
Pink dogbane; Spreading dogbane
Johnston #2, Lower strip-mine area, 30 Jun 1984, *Utech 84-447.* — Open areas.

***A. cannabinum* Linnaeus**
Hemp dogbane; Indian-hemp
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-347.* — Open areas.

Vinca

***V. minor* Linnaeus**
Creeping myrtle; Periwinkle
Raven's Roost, 12 May 1987, *Utech 87-068.* — Cultivated (Eurasia).

Family Asclepiadaceae

Asclepias

***A. exaltata* Linnaeus**
Poke milkweed; Tall milkweed
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-306.* — Moist upland woods.

***A. incarnata* Linnaeus**
Swamp milkweed
Fiorina #3, Crisp Pond area, 5 Jul 1981, *Utech 81-124.* — Swamps and wet meadows.

***A. quadrifolia* Jacquin**
Four-leaved milkweed
Crisp Run area, 16 Jun 1971, *Leberman s.n.* — Dry upland woods.

***A. syriaca* Linnaeus**
Common milkweed
3.5 mi S of Rector, 20 Jul 1959, *Henry s.n.*; Knupp #3, Friedline area, 10 Jun 1981, *Utech 81-121.* — Meadows, fields, and roadsides.

***A. tuberosa* Linnaeus**
Butterfly-weed
Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-248.* — Upland woods and meadows.

Family Solanaceae

Datura

***D. stramonium* Linnaeus**
Jimson-weed
Headquarters, 8 Sep 1991, *Utech 91-1582.* — Adventive cultivar (species also Eurasia).

Physalis

***P. heterophylla* Nees**
Ground-cherry
Friedline fields, 8 Sep 1982, *Mulvihill & Leberman s.n.* — Fields, meadows, and open woods.

***P. longifolia* Nuttall var. *subglabrata* (Mackenzie & Bush) Cronquist**
(*P. subglabra* Mackenzie & Bush)
Ground-cherry
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-232*; Friedline fields, 8 Sep 1982, *Mulvihill & Leberman s.n.* — Fields and open woods.

Solanum

***S. carolinense* Linnaeus**
Horse-nettle
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-364.* — Fields and waste areas.

***S. dulcamara* Linnaeus**
Bittersweet; Trailing nightshade
Cabin #2, 29 Jul 1981, *Utech 81-392.* — Thickets, fields, and open, waste areas; naturalized (Eurasia).

***S. nigrum* Linnaeus**
(*S. ptychanthum* Dunal)
Black nightshade
Headquarters, 10 Oct 1988, *Utech 88-1140.* — Ruderal (species also Eurasia).

Family Convolulaceae

Calystegia

***C. sepium* (Linnaeus) R. Brown**
Hedge bindweed; Wild morning-glory
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Thickets and fields; naturalized (Eurasia).

Convolvulus

***C. arvensis* Linnaeus**
Field bindweed
Cummings, Friedline area, 2 Jul 1993, *Utech 93-2094.* — Fields, roadsides, and waste areas; naturalized (Europe).

Ipomoea

***I. pandurata* (Linnaeus) G.F.W. Meyer**
Wild potato-vine; Man-of-the-earth
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-343.* — Dry woods and thickets.

Family Cuscutaceae

Cuscuta

***C. gronovii* Willdenow ex Schultz**
Dodder
Calverley Lodge, 14 Aug 1967, *Pearth s.n.*; Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-409.* — Forest margins and thickets.

Family Polemoniaceae

Phlox

***P. divaricata* Linnaeus**
Wild blue phlox
Johnston #1, Upper strip-mine area, 20 May 1984, *Mulvihill & Leberman s.n.*; Johnston #2, Lower strip-mine area, 12 May 1987, *Utech 87-067.* — Rich, moist woods.

***P. maculata* Linnaeus**
Sweet-William phlox; Meadow phlox
3 mi S of Rector, 10 Aug 1957, *Henry s.n.*; Knupp #3, Friedline area, 5 Jul 1981, *Utech 81-115.* — Wet meadows and low woods.

***P. paniculata* Linnaeus**
Perennial phlox; Summer phlox
Shawley homestead, 13 Aug 1995, *Utech 95-826.* — Wet meadows and fields.

***P. stolonifera* Sims**
Creeping phlox
3 mi S of Rector, 27 Apr 1957, *Henry s.n.*; Cabin #5, along Powdermill Run, 30 Apr 1983, *Utech & Ohara 83-141.* — Moist woods.

***P. subulata* Linnaeus**
Moss-pink
Laurel Run area, 30 May 1994, *Utech 94-561.* — Native cultivar.

Polemonium

***P. reptans* Linnaeus**
Jacob's-ladder
Strip mine to Headquarters, 14 May 1967, *Leberman s.n.*; Moul Spring to Calverley Lodge, 3 Jun 1987, *Utech 87-187.* — Rich, moist woods.

Family Hydrophyllaceae

Hydrophyllum

***H. canadense* Linnaeus**
Canada waterleaf; Maple-leaved waterleaf
Moul Spring to Powdermill Run, 22 Jun 1982, *Leberman & Mulvihill s.n.*; Moul Spring, along Powdermill Run, 12 Jul 1982, *Utech 82-193.* — Rich, moist woods.

***H. virginianum* Linnaeus**
Virginia waterleaf
Moul Spring to Powdermill Run, 10 Jun 1984, *Mulvihill & Leberman s.n.* — Moist woods and open, wet areas.

Family Boraginaceae

Cynoglossum

***C. virginianum* Linnaeus**
Wild comfrey
Headquarters, along Crisp Run, 21 May 1970, *Leberman s.n.* — Upland woods.

Echium

***E. vulgare* Linnaeus**
Blue-weed; Blue-devil; Viper's bugloss
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-309*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-239.* — Ruderal; naturalized (Europe).

Hackelia

***H. virginiana* (Linnaeus) I.M. Johnston**
Stickseed; Beggar's-lice
Biobrook Shack area, 14 Aug 1994, *Utech 94-1980.* — Upland woods.

Myosotis

***M. scorpioides* Linnaeus**
Forget-me-not; Water scorpion-grass
Byers #1, Laurel Run area, 26 Aug 1983, *Utech 83-557.* — Shallow water and wet areas; naturalized (Europe).

Symphytum

***S. officinale* Linnaeus**
Comfrey
Raven's Roost, 12 May 1987, *Utech 87-064.* — Cultivated (Eurasia).

Family Verbenaceae

Verbena

***V. hastata* Linnaeus**
Blue vervain
Fiorina #3, Crisp Pond meadows, 27 Sep 1988, *Utech 88-1136.* — Moist fields, meadows, and swamps.

***V. urticifolia* Linnaeus**
White vervain
Crisp Pond outlet, 16 Jul 1970, *Leberman s.n.*; Museum to Cabins, along Powdermill Run, 12 Jul 1981, *Utech 81-280*; Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-323.* — Thickets, meadows, and waste areas.

Family Lamiaceae (Labiatae)

Agastache

***A. nepetoides* (Linnaeus) O. Kuntze**
Yellow giant-hyssop
Biobrook Shack area along Powdermill Run, 29 Sep 1995, *Utech 95-939.* — Open mesic woods.

***A. foeniculum* (Pursh) O. Kuntze**
Anise hyssop
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1079.* — Native cultivar (western North America).

Ajuga

***A. reptans* Linnaeus**
Carpet bugle
Cabin #2, 23 May 1984, *Mulvihill s.n.*; Raven's Roost, 8 May 1988, *Utech 88-070.* — Naturalized cultivar (Eurasia).

Blephilia

***B. ciliata* (Linnaeus) Bentham**
Wood mint; Downy blephilia
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; 3 mi S of Rector, 9 Jul 1960, *Henry s.n.*; Crisp Pond, 12 Jun 1965, *Ross 132.* — Woods.

Collinsonia

***C. canadensis* Linnaeus**
Horse-balm; Stoneroot
Calverley Lodge, 12 Sep 1971, *M.G. Netting s.n.*; Byers #1, Laurel Run area, 26 Aug 1984, *Thompson & Loughlin 1894.* — Rich woods.

Glechoma

***G. hederacea* Linnaeus**
Gill-over-the-ground; Ground-ivy
Cabin #5, 12 Jul 1982, *Utech 82-206*; Biobrook Shack area, 30 Apr 1983, *Utech & Ohara 83-145*; Raven's Roost, 8 May 1988, *Utech 88-063.* — Ruderal; naturalized (Eurasia).

Hedeoma

***H. pulegioides* (Linnaeus) Persoon**
American pennyroyal
Biobrook Shack area, Sep 1966, *Feitler s.n.* — Upland woods.

Isanthus

***I. brachiatus* (Linnaeus) Britton, Sterns & Poggenburg**
(*Trichostema brachiatum* Linnaeus)
False pennyroyal
Johnston #4, Lower strip-mine area, 6 Sep 1987, *Utech 87-886.* — Open, dry areas.

Lamiastrum

***L. galeobdolon* (Linnaeus) Ehrenda & Polatsch**
Yellow archangel
Nature Center area, Herb Garden, 15 May 1994, *Utech 94-305.* — Naturalized cultivar (Europe).

Lamium

***L. maculatum* Linnaeus**
Spotted dead-nettle
Raven's Roost, 8 May 1988, *Utech 88-067*; Raven's Roost, 19 Jun 1994, *Utech 94-1156.* — Ruderal; naturalized (Eurasia).

***L. purpureum* Linnaeus**
Purple dead-nettle
Cabin #2, 30 Apr 1973, *Leberman s.n.*; 0.25 mi W of PNR, Seton Hill Road, 5 May 1984, *Mulvihill s.n.*; Raven's Roost, 23 Apr 1988, *Utech 88-060.* — Ruderal; naturalized (Eurasia).

Leonurus

***L. cardiaca* Linnaeus**
Motherwort; Lion's-tail
Knupp #3, Friedline area, 30 Jun 1984, *Utech 84-454.* — Ruderal (Eurasia).

Lycopus

***L. uniflorus* Michaux**
Bugleweed; Water-horehound
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-401.* — Wet areas.

***L. virginicus* Linnaeus**
Bugleweed; Water-horehound
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-360.* — Wet areas.

Melissa
***M. officinalis* Linnaeus**
Lemon-balm
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1083.* — Cultivated (west Asia).

Mentha
***M. arvensis* Linnaeus**
Field mint
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-355.* — Moist areas (circumboreal).

***M. pulegium* Linnaeus**
Common pennyroyal
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1078.* — Cultivated (Europe).

***M. spicata* Linnaeus**
Spearmint
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-354*; Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1087.* — Naturalized cultivar (Europe).

Monarda
***M. clinopodia* Linnaeus**
Basil bee-balm
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Johnston #2, Lower strip-mine area, 4 Jul 1981, *Utech 81-077.* — Woods and thickets.

***M. didyma* Linnaeus**
Oswego-tea; Bee-balm
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-262.* — Moist woods and meadows.

Nepeta
***N. cataria* Linnaeus**
Catnip
Nature Center area, Herb Garden, 6 Aug 1989, *Utech 89-185*; Knupp #3, Friedline area, 3 Jul 1991, *Utech 91-601.* — Naturalized cultivar (Europe).

Origanum
***O. vulgare* Linnaeus**
Wild marjoram; Oregano
Nature Center area, Herb Garden, 15 Jul 1995, *Utech 95-175.* — Cultivated (Eurasia).

Physostegia
***P. virginiana* (Linnaeus) Bentham**
Obedience; False dragonhead
Johnston #2, Crisp Pond area, 8 Sep 1991, *Utech 91-1580.* — Stream banks, thickets, and meadows.

Prunella
***P. vulgaris* Linnaeus**
Heal-all; Self-heal
Headquarters, 31 Aug 1980, *Leberman & Mulvihill s.n.*; Cabin #5, 12 Jul 1981, *Utech 81-265*; Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-329*; Raven's Roost, 14 Jul 1985, *Thompson 2489.* — Ruderal; naturalized (Eurasia).

Pychanthemum
***P. muticum* (Michaux) Persoon**
Mountain-mint
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1086.* — Moist woods and meadows.

***P. virginianum* (Linnaeus) Durand & B.D. Jackson ex B.L. Robinson & Fernald**
Virginia mountain-mint
Sugar camp, 16 Jul 1969, *Leberman s.n.* — Upland woods.

Satureja
***S. vulgaris* (Linnaeus) Fritsch**
(*Clinopodium vulgare* Linnaeus)
Wild basil
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-326*; Fiorina #3, Crisp Pond area, 26 Aug 1983, *Utech 83-561.* — Upland woods (species also Europe).

Scutellaria
***S. incana* Biehler**
Downy skullcap
Headquarters, Coot Slough area, 9 Aug 1973, *Leberman s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-275.* — Upland woods.

***S. lateriflora* Linnaeus**
Mad-dog skullcap
Cummings, Friedline area, 27 Sep 1988, *Utech 88-1126.* — Open, wet areas.

***S. parvula* Michaux var. *leonardi* (Epling) Fernald**
(*S. leonardi* Epling)
Small skullcap
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1577.* — Upland woods and meadows.

Stachys
***S. byzantina* C. Koch**
Lamb's-ear
Nature Center area, Herb Garden, 6 Aug 1989, *Utech 89-184.* — Cultivated (Europe).

Teucrium
***T. canadense* Linnaeus**
Wild germander; Wood-sage
Johnston #4, Lower strip-mine area, 30 Jun 1991, *Utech 91-598.* — Moist forest margins and meadows.

Thymus
***T. vulgaris* Linnaeus**
Thyme
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1082.* — Cultivated (Eurasia).

Family Callitrichaceae
Callitriche
***C. heterophylla* Pursh**
Water-starwort
Swamp, Cabins #2-3 area, 11 Jun 1968, *Leberman s.n.* — Quiet waters and wet shorelines (species also also South America).

Family Plantaginaceae

Plantago

***P. lanceolata* Linnaeus**
English plantain; Ribgrass
Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-311*. — Ruderal; naturalized (Eurasia).

***P. major* Linnaeus**
Common plantain
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-548*. — Ruderal; naturalized (Eurasia).

***P. rugelii* Decaisne**
Rugel's plantain; American plantain
Raven's Roost, 16 Aug 1973, *Pearth s.n.*; Byers #1, Laurel Run area, 17 Jul 1981, *Utech 81-319*; Museum to Cabin #5, 8 Aug 1983, *Utech & Ohara 83-521*. — Roadsides, lawns, and waste areas.

Family Oleaceae

Forsythia

***F. viridissima* Linnaeus**
Forsythia; Golden bells
Headquarters, along Powdermill Run, 3 Apr 1988, *Utech 88-058*. — Cultivated (east Asia).

Fraxinus

***F. americana* Linnaeus**
White ash
Knupp #3, Friedline area, 8 Aug 1982, *Utech 82-386*. — Moist woods.

***F. nigra* Marshall**
Black ash
3.5 mi S of Rector, 22 Jul 1958, *Henry s.n.* — Swamps to alluvial woods.

Ligustrum

***L. vulgare* Linnaeus**
Privet
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-189*. — Naturalized cultivar (Europe).

Syringa

***S. vulgaris* Linnaeus**
Lilac
Headquarters, 8 May 1988, *Utech 88-065*. — Naturalized cultivar (Eurasia).

Family Scrophulariaceae

Aureolaria

***A. laevigata* (Rafinesque) Rafinesque**
(*Gerardia laevigata* Rafinesque)
False-foxglove
Headquarters, 6 Aug 1968, *Leberman s.n.*; Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-367*; Johnston #2, Lower strip-mine area, 26 Aug 1983, *Utech 83-533*. — Mountain woods.

Chaenorrhinum

***C. minus* (Linnaeus) Lange**
Lesser toadflax; Dwarf snapdragon
Johnston #2, Lower strip-mine area, 19 Jun 1944, *Utech 94-1166*. — Ruderal; naturalized (Europe).

Chelone

***C. glabra* Linnaeus**
Smooth turtlehead
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-406*. — Wet woods.

Digitalis

***D. purpurea* Linnaeus**
Foxglove
Nature Center area, Herb Garden, 24 Sep 1990, *Utech 90-1280*. — Adventive cultivar (Europe).

Linaria

***L. canadensis* (Linnaeus) Dumont-Courset**
Old-field toadflax
Johnston #2, Lower strip-mine area, 16 Jun 1995, *Utech 95-157*. — Open sandy areas.

***L. vulgaris* Miller**
Butter-and-eggs
Cummings, Friedline area, 8 Aug 1983, *Utech & Ohara 83-518*. — Ruderal; naturalized (Europe).

Melampyrum

***M. lineare* Desrousseaux**
Cow-wheat
Byers #1, Laurel Run area, 12 Jul 1982, *Utech 82-236*. — Moist woods.

Mimulus

***M. ringens* Linnaeus**
Monkey-flower
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-350*. — Wet woods and swamps.

Pedicularis

***P. canadensis* Linnaeus**
Wood-betony; Forest lousewort
Cabin #3, 22 May 1984, *Mulvihill s.n.*; Cabin #3, 12 May 1987, *Utech 87-006*. — Upland woods.

Penstemon

***P. digitalis* Nuttall ex Sims**
White beard-tongue
3 mi S of Rector, 20 Jun 1957, *Henry s.n.*; Calverley Lodge, 8 Jul 1961, *Henry s.n.*; Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 781*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-214*. — Open, moist woods and meadows.

***P. leavigatus* (Linnaeus) Aiton**
Smooth beard-tongue
4 mi SW of Rector, 17 Jun 1968, *Leberman s.n.* — Open, moist woods and meadows.

Scrophularia

***S. lanceolata* Pursh**
Lance-leaved figwort
Lower strip-mine area, 19 Jun 1994, *Utech 94-1169*. — Dry woods and roadsides.

Verbascum

***V. blattaria* Linnaeus**
Moth mullein
Cabin #2, 22 Jun 1972, *Leberman s.n.*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-349*. — Ruderal; naturalized (Eurasia).

***V. thapsus* Linnaeus**
Common mullein; Flannel-plant
Byers #1, Laurel Run area, 24 Jun 1981, *Utech 81-325.* — Ruderal; naturalized (Europe).

Veronica
***V. americana* (Rafinesque) Schweinitz ex Bentham**
American brooklime; American speedwell
Calverley Lodge, along Powdermill Run, 23 May 1993, *Utech 93-1011.* — Swamps and stream banks.

***V. arvensis* Linnaeus**
Corn speedwell
Lower strip-mine area, 14 May 1993, *Utech 93-775.* — Fields and gardens; naturalized (Eurasia).

***V. officinalis* Linnaeus**
Common speedwell; Gypsyweed
Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 778*; Cabin #5, 12 Jul 1982, *Utech 82-205.* — Dry woods and fields; naturalized (Europe).

***V. persica* Poiret**
Bird's-eye speedwell
Headquarters, 3 Apr 1988, *Utech 88-057.* — Ruderal; naturalized (Asia).

***V. serpyllifolia* Linnaeus**
Thyme-leaved speedwell
Knupp #3, Friedline area, 2 Jun 1983, *Utech 83-303*; Headquarters, 7 May 1993, *Utech 93-741.* — Ruderal; naturalized (Europe).

Veronicastrum
***V. virginicum* (Linnaeus) Farwell**
Culver's-root
Iron Spring Swamp, 11 Aug 1968, *Leberman s.n.*; Fiorina #3, Crisp Pond area, 6 Aug 1989, *Utech 89-182.* — Upland woods and meadows.

Family Orobanchiaceae
Conopholis
***C. americana* (Linnaeus) Wallroth**
Squaw-root
4 mi S of Rector, 24 May 1956, *Henry s.n.*; 3 mi S of Rector, 23 Jul 1960, *Henry s.n.*; Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-302.* — Rich woods.

Epifagus
***E. virginiana* (Linnaeus) W.P.C. Barton**
Beech-drops
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-405.* — Under beech trees.

Orobanche
***O. uniflora* Linnaeus**
Cancer-root; Broom-rape
0.5 mi above Calverley Lodge, along Powdermill Run, 15 Jun 1965, *Pearth s.n.*; Moul Spring to Powdermill Run, 12 Jul 1982, *Utech 82-190.* — Moist woods and stream banks.

Family Bignoniaceae
Campsis
***C. radicans* (Linnaeus) Seemann ex Bureau**
Trumpet-creeper; Trumpet-vine
Cabin #3, 29 Jul 1981, *Utech 81-394.* — Fence-rows; native cultivar.

Catalpa
***C. bignonioides* Walter**
Catalpa; Indian-bean
Johnston #2, Lower strip-mine to Crisp Pond, 8 Aug 1983, *Utech & Ohara 83-509.* — Alluvial woods and fence-rows; native cultivar.

***C. speciosa* (Warder ex Barney) Warder ex Engelmann**
Catalpa; Cigar-tree
3 mi S of Rector, Shawley area, 2 Jul 1960, *Henry s.n.* — Alluvial woods and fence-rows; native cultivar.

Family Campanulaceae
Campanula
***C. americana* Linnaeus**
Tall bellflower
Fiorina #3, Crisp Pond area, 8 Aug 1983, *Utech & Ohara 83-517.* — Open, moist woods and meadows.

Lobelia
***L. cardinalis* Linnaeus**
Cardinal-flower
3 mi S of Rector, 12 Aug 1957, *Henry s.n.*; Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-374*; var. ***alba*** (Eaton) St. John, Headquarters area, 1 Aug 1995, *Mulvihill, Leberman & Moore s.n.* — Wet meadows and fields.

***L. inflata* Linnaeus**
Indian-tobacco
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-373.* — Open woods and meadows.

***L. siphilitica* Linnaeus**
Great lobelia
3 mi S of Rector, 12 Sep 1964, *Henry s.n.*; Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-404.* — Swamps and wet areas.

Triodanis
***T. perfoliata* (Linnaeus) Nieuwland**
(*Specularia perfoliata* (Linnaeus) A. de Candolle)
Venus's-looking-glass
Johnston #2, Crisp Pond area, 23 Jun 1984, *Utech 84-343.* — Stream banks and open areas.

Family Rubiaceae
Asperula
***A. odorata* Linnaeus**
(*Galium odoratum* (Linnaeus) Scopoli)
Sweet woodruff
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1085.* — Cultivated (Europe).

Cephalanthus
***C. occidentalis* Linnaeus**
Buttonbush
Biobrook Shack area, 30 Sep 1984, *Utech 84-951.* — Wet woods and swamps.

Galium
***G. aparine* Linnaeus**
Common bedstraw; Cleavers
Fiorina #3, Crisp Pond area, 12 May 1985, *Utech 85-*

042. — Ruderal; moist areas (circumboreal).

***G. asprellum* Michaux**
Rough bedstraw
Johnston #2, Lower strip-mine to Weaver Mill road, 10 Sep 1988, *Utech 88-1115*. — Wet woods and thickets.

***G. circaezans* Michaux**
Wild licorice
3.5 mi S of Rector, 20 Jun 1959, *Henry s.n.*; Johnston #4, Lower strip-mine area, 11 Jul 1981, *Utech 81-242*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-271*. — Dry woods and thickets.

***G. mollugo* Linnaeus**
White bedstraw; Wild madder
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-305*. — Naturalized (Eurasia).

***G. tinctorium* Linnaeus**
Bedstraw; Cleavers
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.* — Moist areas.

***G. triflorum* Michaux**
Sweet-scented bedstraw
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; 3 mi S of Rector, 2 Jul 1960, *Henry s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-253*; Johnston #2, Lower strip-mine area, 8 Aug 1983, *Utech & Ohara 83-520*. — Woods (circumboreal).

***G. verum* Linnaeus**
Yellow bedstraw
Johnston #4, Lower strip-mine area, 3 Jun 1987, *Utech 87-189*. — Roadsides and fields (Eurasia).

Houstonia

***H. caerulea* Linnaeus**
(*Hedyotis caerulea* (Linnaeus) Hooker)
Bluets; Quaker-ladies
Cabin #5, 12 Jul 1982, *Utech 82-204*. — Open, moist areas.

Mitchella

***M. repens* Linnaeus**
Partridge-berry
Moul Spring to Powdermill Run, 12 Jul 1982, *Utech 82-201*; Johnston #2, 27 Mar 1985, *Thompson, Nishida & Lua Hui-Kheng 2237*. — Woods.

Family Caprifoliaceae

Diervilla

***D. lonicera* P. Miller**
Bush honeysuckle
Moul Springs area, 20 Jun 1997, *Utech 97-324*. — Dry acid woods.

Lonicera

***L. japonica* Thunberg**
Japanese honeysuckle
Knupp #3, Friedline area, 30 Jun 1984, *Utech 84-455*. — Naturalized cultivar (east Asia).

***L. morrowi* A. Gray**
Morrow's honeysuckle
Headquarters, 25 May 1984, *Mulvihill s.n.*; Biobrook Shack area, 12 May 1987, *Utech 87-061*; Headquarters to Lower strip-mine area, 21 May 1989, *Utech 89-172*; Headquarters, Crisp Pond area, 21 May 1989, *Utech 89-173*. — Naturalized cultivar (east Asia).

***L. tatarica* Linnaeus**
Tartarian honeysuckle
Headquarters, 21 May 1989, *Utech 89-179*. — Naturalized cultivar (Eurasia).

Sambucus

***S. canadensis* Linnaeus**
American elderberry
Moul Spring to Powdermill Run, 2 Jul 1981, *Utech 81-013*. — Moist woods and fields.

***S. racemosa* Linnaeus ssp. *pubens* (Michaux) House**
(*S. pubens* Michaux)
Red elderberry
Crisp Pond area, 15 Apr 1968, *Leberman s.n.*; Moul Spring, 30 Jun 1984, *Utech 84-460*. — Rich woods (circumboreal).

Triosteum

***T. perfoliatum* Linnaeus var. *aurantiacum* (Bicknell) Wiegand**
(*T. aurantiacum* Bicknell)
Horse-gentian; Feverwort
3 mi S of Rector, 15 Jun 1961, *Richmond s.n.*; Cummings, Friedline area, 7 Aug 1992, *Utech 92-2123*. — Woods.

Viburnum

***V. acerifolium* Linnaeus**
Maple-leaved viburnum
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-301*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-221*. — Woods.

***V. alnifolium* Marshall**
(*V. lantanoides* Michaux)
Hobble-bush; Witch-hobble
Moul Spring to Powdermill Run, 26 Aug 1983, *Utech 83-543*. — Moist woods.

***V.* × *burkwoodii* Burkwood & Skipworth**
Crisp Pond, Bird Blind Hut area, 21 May 1989, *Utech 89-176*. — Cultivated (hybrid origin).

***V. dentatum* Linnaeus var. *lucidum* Aiton**
(*V. recognitum* Fernald)
Arrow-wood
Fiorina #3, Crisp Pond area, 30 Jun 1991, *Utech 91-596*. — Moist woods and swamps.

***V. lentago* Linnaeus**
Nannyberry; Sheepberry
Headquarters, Crisp Pond area, 21 May 1989, *Utech 89-168*; Fiorina #3, Crisp Pond area, 30 Jun 1991, *Utech 91-597*. — Forest margins and roadsides.

V. opulus* Linnaeus var. *opulus
Guelder-rose
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1075*. — Cultivated (Eurasia; also in North America).

***V. plicatum* Thunberg forma *tomentosum* (Thunberg) Rehder**
Doublefile viburnum
Crisp Pond, Bird Blind Hut area, 21 May 1989, *Utech 89-175*; Nature Center, 16 May 1994, *Utech 94-301*. — Cultivated (east Asia).

***V. prunifolium* Linnaeus**
Black-haw
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Headquarters to Cabins, along Powdermill Run, 21 May 1989, *Utech 89-171*. — Woods, thickets, and roadsides.

Weigela
***W. florida* (Siebold & Zuccarini) A. de Candolle**
Weigela
Cummings, Friedline area, 5 Jun 1994, *Utech 94-708*. — Cultivated (east Asia).

Family VALERIANACEAE
Valeriana
***V. officinalis* Linnaeus**
Garden heliotrope; Valerian
Nature Center area, Herb Garden, 19 Jun 1994, *Utech 94-1160*. — Cultivated (Eurasia).

Valerianella
***V. chenopodifolia* (Pursh) de Candolle**
Corn-salad
Johnston #2, Lower strip-mine area, 12 Jun 1993, *Utech 93-1533*. — Open areas.

Family DIPSACACEAE
Dipsacus
***D. sylvestris* Hudson**
Teasel
Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-282*. — Ruderal; naturalized (Europe).

FAMILY ASTERACEAE (Compositae)
Achillea
***A. millefolium* Linnaeus**
Common yarrow
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-257*. — Ruderal (Eurasia).

Ambrosia
***A. artemisiifolia* Linnaeus**
Common ragweed
Plover Pool area, 4 Sep 1975, *Leberman s.n.*; Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-362*. — Waste areas.

***A. trifida* Linnaeus**
Giant ragweed
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-363*. — Open, moist areas.

Anaphalis
***A. margaritacea* (Linnaeus) Bentham & J.D. Hooker**
Pearly-everlasting
Johnston #2, Lower strip-mine area, 26 Aug 1983, *Utech 83-535*. — Open areas (species also east Asia).

Antennaria
***A. neglecta* Greene**
Field pussytoes
Johnston #1, Iron Spring Swamp, 20 May 1984, *Mulvihill & Leberman s.n.* — Open, dry areas.

***A. parlinii* Fernald**
(*A. plantaginifolia* (Linnaeus) Richardson var. *parlinii* (Fernald) Cronquist)
Ladies'-tobacco
Lower strip-mine area, 14 May 1993, *Utech 93-776*. — Open, dry woods.

Anthemis
***A. cotula* Linnaeus**
Stinking chamomile; Dog-fennel
Knupp #3, Friedline area, 1 Aug 1982, *Utech 82-383*. — Ruderal; naturalized (Europe).

***A. tinctoria* Linnaeus**
Yellow chamomile
Knupp #3, Friedline area, 4 Jul 1982, *Utech & Ohara 82-307*. — Naturalized (Europe).

Arctium
***A. minus* (Hill) Bernhardi**
Common burdock
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-365*. — Naturalized (Eurasia).

Artemisia
***A. dracunculus* Linnaeus**
French tarragon
Nature Center area, Herb Garden, 15 Jul 1995, *Utech 95-171*. — Cultivated (Eurasia).

***A. ludoviciana* Nuttall**
Silver artemisia; Western mugwort
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1089*. — Native cultivar.

***A. vulgaris* Linnaeus**
Common mugwort
Knupp #3, Friedline area, 18 Sep 1983, *Utech 83-574*. — Ruderal (Eurasia).

Aster
***A. acuminatus* Michaux**
Wood aster; Whorled aster; Mountain aster
Moul Spring, 26 Aug 1983, *Utech 83-542*; Lower strip-mine area, 14 Sep 1985, *Mulvihill, Leberman & Rudy 2*. — Mountain woods.

***A. cordifolius* Linnaeus**
(*A. lowrieanus* T.C. Porter)
Blue wood aster; Blue heart-leaved aster
Lower strip-mine to Crisp Pond, 16 Sep 1981, *Utech 81-485*. — Woods.

***A. divaricatus* Linnaeus**
White wood aster; White heart-leaved aster
Lower strip-mine to Crisp Pond, 16 Sep 1981, *Utech 81-482*. — Woods.

***A. lateriflorus* (Linnaeus) Britton**
Calico aster
Johnston #4, Lower strip-mine area, 16 Sep 1981,

Utech *81-486*; Fiorina #3, Crisp Pond area, 18 Sep 1981, *Utech 81-516*. — Open, moist areas.

***A. macrophyllus* Linnaeus**
Big-leaved aster
Moul Spring, 30 Sep 1984, *Utech 84-946*. — Cool, moist woods.

***A. novae-angliae* Linnaeus**
New England aster
Johnston #2, Crisp Pond meadows, 24 Sep 1990, *Utech 90-1279*. — Meadows and moist woods.

***A. pilosus* Willdenow**
Heath aster; Awl aster
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-41*. — Open, sandy areas.

***A. prenanthoides* Muhlenberg ex Willdenow**
Crooked-stemmed aster; Zig-zag aster
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-407*; Johnston #4, Lower strip-mine area, 14 Sep 1991, *Utech 91-1758*. — Moist woods, meadows, and stream banks.

***A. puniceus* Linnaeus**
Purple-stemmed aster; Bristly aster
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-422*; Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-399*. — Swamps and moist areas.

***A. shortii* Lindley in J.D. Hooker**
Short's aster
0.25 mi S of Manor Camp road, 14 Sep 1981, *Leberman s.n.* — Woods.

***A. simplex* Willdenow**
(*A. lanceolatus* Willdenow ssp. *simplex* (Willdenow) A.G. Jones)
Simple aster
Lower strip-mine to Crisp Pond, 16 Sep 1981, *Utech 81-486*. — Woods.

***A. umbellatus* P. Miller**
White flat-topped aster
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-418*. — Moist, low areas.

***A. undulatus* Linnaeus**
Clasping heart-leaved aster; Wavy-leaved aster
Byers #1, Laurel Run area, 15 Sep 1981, *Utech 81-458*. — Open woods and dry meadows.

Bellis

***B. perennis* Linnaeus**
English daisy
Nature Center area, 11 Jun 1994, *Utech 94-877*. — Ruderal; lawns (Europe).

Bidens

***B. cernua* Linnaeus**
Bur-marigold
Fiorina #3, Crisp Pond area, 10 Sep 1988, *Utech 88-1103*. — Moist, low areas (species also Europe).

***B. frondosa* Linnaeus**
Devil's beggar-ticks; Stick-tights
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-398*. — Wet waste areas.

***B. vulgata* Greene**
Tall beggar-ticks; Stick-tights
Johnston #4, Lower strip-mine area, 14 Sep 1991, *Utech 91-1759*. — Open, moist areas.

Cacalia

***C. atriplicifolia* Linnaeus**
Pale Indian-plantain
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.* — Open, dry woods.

Centaurea

***C. maculosa* Lamarck**
Spotted knapweed; Spotted star-thistle
20 Sep 1967, *Leberman s.n.*; Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-412*. — Ruderal; naturalized (Europe).

Chrysanthemum

***C. leucanthemum* Linnaeus**
Ox-eye daisy
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-351*. — Ruderal; naturalized (Eurasia).

Cichorium

***C. intybus* Linnaeus**
Chicory; Blue-sailors
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-555*. — Ruderal; naturalized (Europe).

Cirsium

***C. altissimum* (Linnaeus) Sprengel**
Tall thistle
Knupp #3, Friedline area, 30 Sep 1983, *Utech 83-945*. — Ruderal; naturalized (Eurasia).

***C. arvense* (Linnaeus) Scopoli**
Canada thistle
Johnston #4, Lower strip-mine area, 6 Sep 1987, *Utech 87-881*. — Ruderal; naturalized (Eurasia).

***C. vulgare* (Savi) Tenore**
Bull thistle
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-359*. — Old fields; naturalized (Eurasia).

Conyza

***C. canadensis* (Linnaeus) Cronquist**
(*Erigeron canadensis* Linnaeus)
Horseweed
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1578*. — Waste and open areas.

Echinops

***E. sphaerocephalus* Linnaeus**
Globe-thistle
Nature Center area, Herb Garden, 14 Aug 1994, *Utech 94-1976*. — Cultivated (Eurasia).

Erechtites

***E. hieracifolia* (Linnaeus) Rafinesque ex de Candolle**
Fireweed; Pilewort
Knupp #3, Friedline area, 14 Sep 1991, *Utech 91-1760*. — Dry woods, marshes, and waste areas.

Erigeron

***E. annuus* (Linnaeus) Persoon**
Daisy fleabane; Annual fleabane
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-228*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-336*. — Open areas.

***E. philadelphicus* Linnaeus**
Philadelphia fleabane; Philadelphia daisy
Knupp #3, Friedline area, 2 Jun 1983, *Utech 83-305*. — Open areas.

***E. strigosus* Muhlenberg ex Willdenow**
Rough fleabane; White-top
Knupp #3, Friedline area, 5 Jun 1994, *Utech 94-706*. — Open areas.

Eupatorium

***E. altissimum* Linnaeus**
Tall eupatorium
Johnston #2, Lower strip-mine area, 25 Sep 1983, *Utech 83-578*. — Open woods and dry meadows.

***E. coelestrinum* Linnaeus**
Mistflower; Wild ageratum
Raven's Roost, 10 Sep 1988, *Utech 88-1097*. — Woods, meadows, and stream banks.

***E. fistulosum* Barratt**
Hollow-stemmed Joe-Pye-weed
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-421*. — Moist, low woods.

***E. perfoliatum* Linnaeus**
Boneset
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-378*; Fiorina #3, Crisp Pond area, 8 Aug 1983, *Utech & Ohara 83-525*. — Moist, low areas.

***E. purpureum* Linnaeus**
Purple-noded Joe-Pye-weed
Headquarters, Aug 1962, *Henry s.n.* — Rich woods and thickets.

***E. rugosum* Houttuyn**
White snakeroot
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-408*. — Forest margins.

Euthamia

***E. graminifolia* (Linnaeus) Nuttall**
(*Solidago graminifolia* (Linnaeus) Salisbury)
Grass-leaved goldenrod; Flat-topped goldenrod
Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-511*. — Open, moist areas.

Galinsoga

***G. quadriradiata* Ruiz & Pavon**
(*G. ciliata* (Rafinesque) S.F. Blake)
Quickweed
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-266*. — Naturalized (South and Central America).

Gnaphalium

***G. obtusifolium* Linnaeus**
Fragrant cudweed; Catfoot
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1579*. — Forest margins and fields.

Helianthus

***H. annuus* Linnaeus**
Wild sunflower
Lower strip-mine area, 16 Jul 1995, *Utech 95-177*. — Open, dry, sandy areas.

***H. decapetalus* Linnaeus**
Forest sunflower; Thin-leaved sunflower
Knupp #3, Friedline area, 28 Jul 1981, *Utech 81-387*. — Woods and stream banks.

***H. strumosus* Linnaeus**
Rough-leaved sunflower
Strip mine area, 19 Sep 1958, *Jennings s.n.*; Johnston #2, Lower strip-mine area, 25 Sep 1983, *Utech 83-577*. — Forest margins.

***H. tuberosus* Linnaeus**
Jerusalem artichoke
3 mi S of Rector, 24 Aug 1957, *Henry s.n.* — Open, moist areas.

Heliopsis

***H. helianthoides* (Linnaeus) Sweet**
Ox-eye; False sunflower
Johnston #2, Crisp Pond meadows, 25 Jul 1981, *Utech 81-339*. — Dry woods and waste areas.

Hieracium

***H. aurantiacum* Linnaeus**
Orange king-devil; Orange hawkweed; Devil's-paintbrush
Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 777*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-219*. — Meadows and roadsides; naturalized (Europe).

***H. caespitosum* Dumortier**
(*H. pratense* Tausch)
Yellow king-devil; Yellow hawkweed
Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 779*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-342*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-223*. — Meadows and roadsides; naturalized (Europe).

***H. gronovii* Linnaeus**
Gronovius' hawkweed
Cabin #3, 8 Jun 1980, *Henry s.n.* — Open, dry woods.

***H. paniculatum* Linnaeus**
Panicled hawkweed
Biobrook Shack area, 14 Aug 1994, *Utech 94-1979*. — Woods.

***H. scabrum* Michaux**
Sticky hawkweed; Rough hawkweed
3.5 mi S of Rector, 20 Sep 1958, *Henry s.n.*; Crisp Pond area, 9 Sep 1988, *Mulvihill 123*. — Open, dry woods.

***H. venosum* Linnaeus**
Veiny hawkweed; Rattlesnake-weed
Middle strip-mine area, 13 May 1968, *Leberman s.n.*; Knupp #3, Friedline area, 11 Jul 1983, *Utech 83-235*. — Open, dry woods.

Inula

***I. helenium* Linnaeus**
Elecampane
Nature Center area, Butterfly Garden, 14 Aug 1994, *Utech 94-1974.* — Cultivated (Europe).

Krigia

***K. biflora* (Walter) S.F. Blake**
Dwarf dandelion; Two-flowered cynthia
Sugar Camp area, 4 Jun 1970, *Leberman s.n.*; Lower strip-mine area, 16 Jun 1982, *Leberman & Mulvihill s.n.* — Open woods, fields, and roadsides.

Lactuca

***L. biennis* (Moench) Fernald**
Blue lettuce
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-551.* — Moist waste areas.

***L. canadensis* Linnaeus**
Wild lettuce
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-337.* — Fields and waste areas.

***L. serriola* Linnaeus**
(*L. scariola* Linnaeus)
Prickly lettuce
Knupp #3, Friedline area, 26 Jul 1983, *Utech 83-376A.* — Ruderal; naturalized (Europe).

Lapsana

***L. communis* Linnaeus**
Nipplewort
Byers #1, Laurel Run area, 1 Jul 1981, *Utech 81-006.* — Ruderal; naturalized (Eurasia).

Liatris

***L. spicata* (Linnaeus) Willdenow**
Blazing star
Nature Center, Butterfly Garden, 15 Jul 1995, *Utech 95-170.* — Native cultivar.

Matricaria

***M. matricarioides* (Lessing) T.C. Porter**
Pineapple-weed
Knupp #3, Friedline area, 1 Aug 1982, *Utech 82-382.* — Waste areas; native westward.

Picris

***P. hieracioides* Linnaeus**
Ox-tongue
Knupp #3, Friedline area, 3 Jul 1991, *Utech 91-600.* — Ruderal; naturalized (Eurasia).

Prenanthes

***P. alba* Linnaeus**
White wood-lettuce; Rattlesnake-root
4 Oct 1966, *Leberman* s.n. — Woods.

***P. altissima* Linnaeus**
White wood-lettuce; Rattlesnake-root
Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-512*; Moul Spring, 30 Sep 1984, *Utech 84-947.* — Woods.

Rudbeckia

***R. hirta* Linnaeus**
Black-eyed-Susan
3 mi S of Rector, 9 Jul 1960, *Henry s.n.*; Cummings, Friedline area, 5 Jul 1981, *Utech 81-106*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-285*; Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-419.* — Meadows and fields.

***R. laciniata* Linnaeus**
Cut-leaved coneflower
Shawley tract, 8 Sep 1991, *Utech 91-1574.* — Marshes and moist meadows.

***R. triloba* Linnaeus**
Three-lobed coneflower
Johnston #2, Lower strip-mine area, 28 Aug 1982, *Utech & Ohara 82-403.* — Moist woods and low areas.

Santolina

***S. viscosa* Lagasca**
Lavender cotton
Herb Garden, 5 Sep 1988, *Utech 88-1080.* — Cultivated (Europe).

Senecio

***S. aureus* Linnaeus**
Heart-leaved groundsel; Golden ragwort
Headquarters, 6 May 1983, *Leberman s.n.*; Weaver Mill road to Lower strip-mine area, 12 May 1984, *Utech 84-046A*; Headquarters, 21 May 1989, *Utech 89-169.* — Open, moist woods.

***S. vulgaris* Linnaeus**
Common groundsel
Knupp #3, Friedline area, 5 Sep 1988, *Utech 88-1070.* — Ruderal (Eurasia).

Silphium

***S. perfoliatum* Linnaeus**
Cup-plant
Nature Center area, Butterfly Garden, 14 Aug 1994, *Utech 94-1975.* — Native cultivar.

***S. trifoliatum* Linnaeus**
Whorled rosinweed
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.*; Headquarters, 21 Jul 1962, *Ross s.n.* — Open woods.

Solidago

***S. arguta* Aiton**
Silvery goldenrod
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-413.* — Open woods and dry meadows.

***S. bicolor* Linnaeus**
Silver-rod; White goldenrod
Byers #1, Laurel Run area, 15 Sep 1981, *Utech 81-457*; Fiorina #3, Crisp Pond area, 18 Sep 1981, *Utech 81-517.* — Dry, rocky woods.

***S. caesia* Linnaeus**
Blue-stemmed goldenrod
Cabin #3, along Powdermill Run, 6 Oct 1980, *Utech 80-145*; Lower strip-mine to Crisp Pond, 16 Sep 1981, *Utech 81-477*; Lower strip-mine to Crisp Pond meadows, 16 Sep 1981, *Utech 81-481.* — Woods.

***S. canadensis* Linnaeus**
Canada goldenrod
Lower strip-mine to Crisp Pond, 16 Sep 1981, *Utech 81-484*; Knupp #3, Friedline area, 18 Sep 1981, *Utech 81-486A*; Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-552*. — Meadows and fields.

***S. flexicaulis* Linnaeus**
Zig-zag goldenrod
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1583*. — Moist woods.

***S. juncea* Aiton**
Early goldenrod; Yellow top
Knupp #3, Friedline area, 9 Sep 1995, *Utech 95-916*. — Open woods and dry meadows.

***S. nemoralis* Aiton**
Old-field goldenrod
Headquarters, Crisp Pond area, 28 Aug 1982, *Leberman s.n.* — Dry woods and open areas.

***S. patula* Muhlenberg ex Willendow**
Rough goldenrod
Shawley tract, 9 Sep 1995, *Utech 95-915*. — Wet meadows and fields.

***S. rugosa* P. Miller**
Winkle-leaved goldenrod
Fiorina #3, Crisp Pond area, 6 Sep 1981, *Utech 81-400*; Fiorina #3, Crisp Pond area, 18 Sep 1981, *Utech 81-518*. — Open areas.

***S. ulmifolia* Muhlenberg**
Elm-leaved goldenrod
Johnston #1, Crisp Pond area, 18 Sep 1981, *Utech 81-486B*. — Woods and open areas.

Sonchus
***S. asper* (Linnaeus) Hill**
Prickly sow-thistle
Shawley tract, 8 Sep 1991, *Utech 91-1573*. — Ruderal (Europe).

***S. oleraceus* Linnaeus**
Common sow-thistle; Milk-thistle
Headquarters, 24 Sep 1990, *Utech 90-1281*. — Ruderal (Europe).

Tanacetum
***T. vulgare* Linnaeus**
Tansy
Headquarters, 13 Aug 1968, *Leberman s.n.* — Naturalized cultivar (Eurasia).

Taraxacum
***T. officinale* Weber**
Common dandelion
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-220*. — Ruderal; naturalized (Eurasia).

Tragopogon
***T. dubius* Scopoli**
(*T. major* Jacquin)
Goat's-beard
Friedline area, 14 Jun 1982, *Leberman & Mulvihill s.n.* — Ruderal (Europe).

Tussilago
***T. farfara* Linnaeus**
Coltsfoot
3 mi S of Rector, 14 Mar 1957, *Henry s.n.*; Biobrook Shack area, 30 Apr 1983, *Utech & Ohara 83-144*. — Ruderal; naturalized (Eurasia).

Verbesina
***V. alternifolia* (Linnaeus) Britton**
Wingstem
Johnston #2, Lower strip-mine to Crisp Pond, 25 Jul 1981, *Utech 81-358A*; Fiorina #3, Crisp Pond area, 5 Jul 1981, *Utech 81-128*. — Moist woods, thickets, and meadows.

Vernonia
***V. gigantea* (Walter) Trelease**
(*V. altissima* Nuttall)
Tall ironweed
Fiorina #3, Crisp Pond area, 26 Jul 1981, *Utech 81-377*; Lower strip-mine to Crisp Pond meadows, 16 Sep 1981, *Utech 81-483*. — Moist woods and meadows.

Xanthium
***X. strumarium* Linnaeus**
Cocklebur
Knupp #3, Friedline area, 1 Sep 1984, *Utech 84-933*. — Ruderal (Eurasia).

Class Liliopsida (Monocotyledons)

Family Alismataceae

Sagittaria
***S. latifolia* Willdenow**
Arrowhead; Duck-potato; Wapato
3 mi S of Rector, 24 Aug 1957, *Henry s.n.*; Knupp #3, Friedline area, Laurel Run area, 26 Jul 1981, *Utech 81-375*. — Swamps and ponds (species also tropical America).

Family Hydrocharitaceae

Vallisneria
***V. americana* Michaux**
Eel-grass; Tape-grass; Water-celery
Crisp Pond, 26 Aug 1970, *Henry s.n.* — Quiet water (species also tropical America).

Family Potamogetonaceae

Potamogeton
***P. diversifolius* Rafinesque**
Snailseed pondweed; Diverse-leaved pondweed
Fiorina #3, Crisp Pond area, 8 Aug 1983, *Utech & Ohara 83-511*. — Shallow water.

Family Acoraceae

Acorus
***A. calamus* Linnaeus**
Sweetflag; Calamus
3 mi S of Rector, 20 Jun 1957, *Henry s.n.*; Johnston #2, 21 Jun 1985, *Thompson, Nishida, Macdonald & Hyde 2478*. — Swamps and shallow water; naturalized (circumboreal).

Family Araceae

Arisaema

***A. triphyllum* (Linnaeus) Schott**
Jack-in-the-pulpit; Indian-turnip
4 mi S of Rector, 3 May 1956, *Henry s.n.*; 4 mi S of Rector, 24 May 1956, *Henry s.n.*; Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-316A*; Headquarters, 9 May 1983, *Leberman s.n.*; Johnston #1, Strip-mine road, 20 May 1984, *Mulvihill & Leberman s.n.*; Johnston #1, Strip-mine area, 4 May 1985, *Thompson & Loughlin 2301*. — Rich, moist woods.

Symplocarpus

***S. foetidus* (Linnaeus) Salisbury ex Nuttall**
Skunk-cabbage
Cabin #4, 14 Mar 1957, *Henry s.n.*; Cabin #4, 27 Aug 1957, *Henry s.n.*; Cabin area, 29 Mar 1958, *Henry s.n.*; Johnston #2, 27 Mar 1985, *Thompson, Nishida & Lua Hui-Kheng 2238*. — Swamps and wet areas (species also east Asia).

Family Lemnaceae

Lemna

***L. minor* Linnaeus**
Lesser duckweed; Water-lentils
Fiorina #3, Crisp Pond area, 10 Sep 1988, *Utech 88-1102*. — Ponds and lakes (species also Eurasia).

Family Commelinaceae

Commelina

***C. communis* Linnaeus**
Dayflower
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-366*; Headquarters to Crisp Pond, 5 Sep 1988, *Utech 88-1068*. — Ruderal; naturalized (east Asia).

Tradescantia

***T. ohiensis* Rafinesque**
Spiderwort
Nature Center area, Herb Garden, 10 Sep 1988, *Utech 88-1098*. — Native cultivar.

***T. virginiana* Linnaeus**
Spiderwort
Shawley homestead, 2 Jun 1995, *Utech 95-142*. — Native cultivar.

Family Juncaceae

Juncus

***J. effusus* Linnaeus**
Soft rush
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Marshes and wet meadows (species also Europe).

***J. marginatus* Rostkovius**
Grass-leaved rush
3 mi S of Rector, 2 Jul 1960, *Henry s.n.*; 3 mi S of Rector, 8 Sep 1962, *Henry s.n.*; Crisp Pond area, 26 Aug 1990, *Isaac & Isaac 3282*. — Wet meadows.

***J. subcaudatus* (Engelmann) Coville & S.F. Blake**
Rush
Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3269*; Crisp Pond area, 26 Aug 1990, *Isaac & Isaac 3280*. — Swamps and wet areas.

***J. tenuis* Willdenow**
Path rush
Fiorina #3, Crisp Pond area, 17 Jul 1981, *Utech 81-318*; Headquarters, 6 Sep 1987, *Utech 87-890A*; Cabin #5, 26 Aug 1990, *Isaac & Isaac 3289*. — Open areas, compact soils.

Luzula

***L. acuminata* Rafinesque**
Hairy wood-rush
4 mi S of Rector, 3 May 1956, *Henry s.n.*; Cabin #3, 13 May 1992, *Utech 92-500*. — Moist, open woods.

***L. multiflora* (Ehrhart) Lejeune**
Field wood-rush
Cabin #3, along Powdermill Run, 24 Apr 1994, *Utech 93-338*. — Moist, open woods.

Family Cyperaceae

Bulbostyllis

***B. capillaris* (Linnaeus) C.B. Clarke**
Sand-rush
Fiorina #3, Crisp Pond area, 31 Jul 1992, *Utech 92-3314*. — Open, sandy, wet areas.

Carex

***C. baileyi* Britton**
Sedge
Moul Spring to Powdermill Run, 12 Jul 1982, *Utech 82-195*. — Swampy woods and wet meadows.

***C. bushii* Mackenzie**
Sedge
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-217*; Friedline area, 14 Jun 1982, *Leberman & Mulvihill s.n.* — Moist woods and meadows.

***C. crinita* Lamark**
Sedge
Coleman tract, between Greensburg Hunt Club and Powdermill Run, 21 May 1996, *Mulvihill & Leberman s.n.* — Moist woods and meadows.

***C. digitalis* Willdenow**
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Dry woods.

***C. gracilescens* Steudel**
Sedge
3.5 mi S of Rector, 20 Jun 1959, *Henry s.n.* — Woods.

***C. gracillima* Schweinitz**
Sedge
3.5 mi S of Rector, 20 Jun 1959, *Henry s.n.* — Woods.

***C. granularia* Muhlenberg**
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Wet meadows.

***C. hirsutella* Mackenzie**
(*C. complanata* Torrey & Hooker)
Sedge
3 mi S of Rector, 2 Jul 1960, *Henry s.n.* — Dry woods and fields.

***C. laxiculmis* Schweinitz**
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Woods.

***C. lurida* Wahlenbenberg**
Sedge
3 mi S of Rector, 17 Jul 1957, *Henry s.n.*; 3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-272*; Crisp Pond area, 26 Aug 1990, *Isaac & Isaac 3278.* — Swamps and wet woods.

***C. normalis* Mackenzie**
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Open woods and wet meadows.

***C. rosea* Schkuhr ex Willdenow**
(*C. convoluta* Mackenzie)
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Woods.

***C. scabrata* Schweinitz**
Sedge
Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3265.* — Wet woods.

***C. scoparia* Schkuhr ex Willdenow**
Broom-sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Crisp Pond area, 26 Aug 1990, *Isaac & Isaac 3283.* — Open woods and wet meadows.

***C. vulpinoidea* Michaux**
Sedge
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.* — Wet areas.

Cyperus

***C. flavescens* Linnaeus**
Umbrella-sedge
Johnston #4, Lower strip-mine area, 8 Sep 1991, *Utech 91-1576.* — Open, wet areas.

***C. rivularis* Kunth**
(*C. bipartitus* Torrey)
Galingale; Umbrella-sedge
3 mi S of Rector, 24 Sep 1960, *Henry s.n.* — Open, wet areas.

***C. strigosus* Linnaeus**
False nutsedge; Umbrella-sedge
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-332*; Crisp Pond area, 26 Aug 1990, *Isaac & Isaac 3281.* — Swamps and wet fields.

Eleocharis

***E. obtusa* (Willdenow) Schultes**
(*E. ovata* (Roth) Roemer & Schultes)
Spike-rush
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-357.* — Wet areas (species also Eurasia).

***E. tenuis* (Willdenow) Schultes**
Spike-rush
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Fiorina #3, Crisp Pond area, 12 Jul 1982, *Utech & Ohara 82-231.* — Wet areas.

Scirpus

***S. cyperinus* (Linnaeus) Kunth**
Wool-grass
Fiorina #3, Crisp Pond area, 26 Aug 1983, *Utech 83-564*; Cabin #5, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3270.* — Marshes and wet meadows.

***S. polyphyllus* Vahl**
Bulrush
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.*; Fiorina #3, Crisp Pond area, 26 Jul 1981, *Utech 81-376A*; Calverley Lodge to Moul Spring, along Powdermill Run, 25 Aug 1990, *Isaac & Isaac 3276.* — Swamps and marshes.

***S. purshianus* Fernald**
(*Schoenoplectus purshianus* (Fernald) Strong)
Bulrush
Crisp Pond, 26 Aug 1990, *Isaac & Isaac 3279.* — Swamps and marshes.

***S. validus* Vahl**
(*Schoenoplectus tabernaemontani* (K.C. Gmelin) Palla; *Scirpus tabernaemontani* K.C. Gmelin)
Bulrush
Coot Slough, 13 Jun 1980, *Leberman s.n.*; Fiorina #3, Crisp Pond meadows, 27 Sep 1988, *Utech 88-1135.* — Swamps and marshes (species also tropical Ameria).

Family POACEAE (Gramineae)

Agrostis

***A. gigantea* Roth**
(*A. alba* Linnaeus; *A. stolonifera* Linnaeus var. *major* (Gaudin) Farwell)
Redtop
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-333*; Knupp #3, Friedline area, 28 Jul 1981, *Utech 81-389.* — Naturalized (Europe).

***A. hyemalis* (Walter) Britton, Sterns & Poggenburg**
Hair grass; Tickle grass
Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-515.* — Open areas.

***A. perennans* (Walter) Tuckerman**
Bent grass
3.5 mi S of Rector, 20 Aug 1958, *Henry s.n.*; 3 mi S of Rector, 4 Aug 1962, *Henry s.n.*; Headquarters, Todd House area, 10 Sep 1988, *Utech 88-1123.* — Dry woods.

Andropogon

***A. gerardii* Vitman**
Big bluestem; Turkey-foot
Knupp #3, Friedline area, 18 Sep 1992, *Utech 92-3102.* — Open, sandy areas.

***A. virginicus* Linnaeus**
Broom-sedge
Knupp #3, Friedline area, 14 Sep 1991, *Utech 91-1762.* — Old fields.

Anthoxanthum

***A. odoratum* Linnaeus**
Sweet vernal grass

3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-209*. — Meadows and roadsides; naturalized (Europe).

Aristida

***A. dichotoma* Michaux**
Three-awned grass; Poverty grass
3 mi S of Rector, 10 Aug 1957, *Henry s.n.* — Dry, sandy areas.

***A. oligantha* Michaux**
Poverty grass
Upper strip-mine area, 13 Aug 1995, *Utech 95-825*. — Open, dry, sandy areas.

Arrhenatherum

***A. elatius* (Linnaeus) P. Beauvois**
Tall oat grass
Knupp #3, Friedline area, 13 Jul 1982, *Utech & Ohara 82-232*. — Meadows and roadsides; naturalized (Europe).

Avena

***A. sativa* Linnaeus**
Oats
Knupp #3, Friedline area, 27 Sep 1988, *Utech 88-1127*. — Adventive agricultural cultivar (Europe).

Brachyelytrum

***B. erectum* (Schreber) P. Beauvois**
Brachyelytrum
Friedline area, 4 Jul 1959, *Henry s.n.*; Calverley Lodge to Moul Spring, 5 Jul 1981, *Utech 81-082*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-268*. — Moist woods (species also east Asia).

Bromus

***B. commutatus* Schrader**
Hairy chess
Byers #1, Laurel Run area, 16 Jul 1981, *Utech 81-310*; Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-210*. — Naturalized (Europe).

***B. inermis* Leysser**
Smooth brome
Johnston #2, Lower strip-mine area, 24 Jul 1981, *Utech 81-351*; Byers #1, Laurel Run area, 4 Jul 1982, *Utech & Ohara 82-306*. — Naturalized (Europe).

***B. japonicus* Thunberg ex J.A. Murray**
Japanese chess
Knupp #3, Friedline area, 17 Jun 1995, *Utech 95-159*. — Meadows and roadsides; naturalized (east Asia).

***B. pubescens* Muhlenberg ex Willdenow**
(*B. purgans* Linnaeus)
Canada brome; Wood chess
3.5 mi S of Rector, Aug 1959, *Henry s.n.* — Rich woods.

***B. sterilis* Linnaeus**
Barren brome
Lower strip-mine area, 14 May 1993, *Utech 93-774*. — Ruderal; naturalized (south Europe).

***B. tectorum* Linnaeus**
June grass; Downy chess
Lower strip-mine area, 19 Jun 1994, *Utech 94-1165*. — Ruderal; naturalized (Eurasia).

Cinna

***C. arundinaceae* Linnaeus**
Wood reedgrass
3 mi S of Rector, 8 Sep 1962, *Henry s.n.*; Cabin #3, 6 Sep 1987, *Utech 87-884*; Raven's Roost, 9 Aug 1995, *Mulvihill s.n.* — Moist forest margins.

Dactylis

***D. glomerata* Linnaeus**
Orchard grass
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-207*. — Meadows and fields; naturalized (Europe).

Danthonia

***D. compressa* Austin**
Common oat grass
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-274*. — Dry woods.

***D. spicata* (Linnaeus) P. Beauvois**
Poverty oat grass
Lower strip-mine area, 19 Jun 1994, *Utech 94-1167*. — Dry woods and open fields.

Digitaria

***D. ischaemum* (Schreber ex Schweig) Schreber ex Muhlenberg**
Smooth crab grass
Cabin #3, 6 Sep 1987, *Utech 87-883*. — Ruderal; naturalized (Europe).

***D. sanguinalis* (Linnaeus) Scopoli**
Northern crab grass
Cabin #5, 29 Jul 1981, *Utech 81-393*. — Ruderal; naturalized (Europe).

Echinochloa

***E. crusgalli* (Linnaeus) P. Beauvois**
Barnyard grass
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-370*; Raven's Roost area, 9 Aug 1995, *Mulvihill s.n.* — Ruderal; naturalized (Europe).

Eleusine

***E. indica* (Linnaeus) Gaertner**
Goose grass; Yard grass
Knupp #3, Friedline area, 27 Sep 1988, *Utech 88-1130*. — Ruderal; naturalized (Europe).

Elymus

***E. riparius* Wiegand**
Riverbank wild-rye
Knupp #3, Friedline area, 26 Jul 1981, *Utech 81-372*. — Moist woods and stream banks.

***E. virginicus* Linnaeus**
Virginia wild-rye
3.5 mi S of Rector, 21 Jul 1959, *Henry s.n.* — Moist woods and stream banks.

Elytrigia

***E. repens* (Linnaeus) Desvaux ex Nevski**
(*Agropyron repens* (Linnaeus) P. Beauvois)
Quackgrass; Witch-grass
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Byers #1,

Laurel Run area, 16 Jul 1981, *Utech 81-312*. — Ruderal; naturalized (Eurasia).

Eragrostis

E. frankii C.A. Meyer ex Steudel
Love grass; Meadow grass
3 mi S of Rector, 8 Sep 1962, *Henry s.n.* — Moist woods and stream banks.

***E. minor* Host**
Love grass
Johnston #2, Lower strip-mine area, 19 Jun 1994, *Utech 94-1163*. — Open, sandy areas (Europe).

***E. pectinacea* (Michaux) Nees**
Carolina love grass
Johnston #2, Lower strip-mine area, 25 Sep 1983, *Utech 83-576*. — Open, moist areas (species also Central America).

***E. spectabilis* (Pursh) Steudel**
Purple love grass; Tumblegrass
Johnston #2, Lower strip-mine area, 16 Jul 1995, *Utech 95-178*. — Open, sandy areas.

Festuca

***F. arundinacea* Schreber**
Fescue
Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-211*. — Meadows and roadsides; naturalized (Europe).

Glyceria

***G. melicaria* (Michaux) Hubbard**
Slender mannagrass
Headquarters, Todd House area, 10 Sep 1988, *Utech 88-1122*. — Swamps and wet areas.

***G. striata* (Lamarck) A.S. Hitchcock**
Fowl mannagrass
Johnston #2, Lower strip-mine area, 11 Jul 1981, *Utech 81-240*. — Swamps and marshes.

Holcus

***H. lanatus* Linnaeus**
Velvet grass
Knupp #3, Friedline area, 12 Jul 1982, *Utech 82-208*. — Meadows and roadsides; naturalized (Europe).

Hordeum

***H. jubatum* Linnaeus**
(*Critesion jubatum* (Linnaeus) Nevski)
Squirrel-tail grass; Foxtail barley
Knupp #3, Friedline area, 10 Jun 1984, *Utech 84-299*. — Ruderal; naturalized (Europe).

***H. vulgare* Linnaeus**
Barley
Johnston #2, Lower strip-mine area, 16 Jun 1995, *Utech 95-156*. — Agricultural cultivar; adventive (Eurasia).

Hystrix

***H. patula* Moench**
(*Elymus hystrix* Linnaeus)
Bottle-brush grass
Headquarters area, 25 Jul 1980, *Leberman s.n.*; Knupp #3, Friedline area, 30 Jul 1981, *Utech 81-388*. — Moist woods and stream banks.

Leersia

***L. oryzoides* (Linnaeus) Swartz**
Rice cutgrass
3 mi S of Rector, 8 Aug 1962, *Henry s.n.* — Swamps and wet meadows.

***L. virginica* Willdenow**
White grass; Virginia cutgrass
3.5 mi S of Rector, Aug 1959, *Henry s.n.*; 3 mi S of Rector, 8 Aug 1962, *Henry s.n.*; Byers #1, Laurel Run area, 5 Jul 1981, *Utech 81-107*; Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-420*; Crisp Pond, 6 Sep 1987, *Utech 87-879*. — Moist and wet woods.

Lolium

***L. perenne* Linnaeus**
Ryegrass
Knupp #3, Friedline area, 12 Jul 1982, *Utech & Ohara 82-229*. — Naturalized (Europe).

Muhlenbergia

***M. frondosa* (Poiret) Fernald**
Wirestem muhly; Nimble-will
Calverley Lodge, along Powdermill Run, 25 May 1992, *Utech 92-730*. — Open, moist areas.

***M. schreberi* J.F. Gmelin**
Dropseed; Nimble-will
Headquarters area, 10 Sep 1988, *Utech 88-1124*. — Open, moist areas.

Panicum

***P. capillare* Linnaeus**
Old-witch grass
3 mi S of Rector, 8 Aug 1962, *Henry s.n.*; Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-514*. — Fields and waste areas.

***P. clandestinum* Linnaeus**
Deer-tongue grass
3.5 mi S of Rector, 4 Jul 1959, *Henry s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-250*. — Moist woods and thickets.

***P. commutatum* Schultes**
Johnston #2, Lower strip-mine area, 8 Jun 1980, *Kiger 782*. — Woods and mesic thickets.

***P. dichotomiflorum* Michaux**
Smooth panic-grass
Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-513*. — Agricultural lands and waste areas.

***P. dichotomum* Linnaeus**
Panic-grass
3.5 mi S of Rector, Aug 1959, *Henry s.n.* — Woods and open areas.

***P. lanuginosum* Elliott**
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-252*; Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-411*; Knupp #3, Friedline area, 5 Jul 1984, *Utech 84-506*. — Open woods and dry fields.

***P. latifolium* Linnaeus**
Broad-leaved panic-grass
Calverley Lodge, 14 Jun 1980, *Leberman s.n.*; Byers #1, Laurel Run area, 17 Jul 1981, *Utech 81-322*. — Woods and mesic thickets.

***P. microcarpon* Muhlenberg**
Small-fruited panic-grass
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-251*. — Woods and meadows.

***P. miliaceum* Linnaeus**
Broomcorn millet
Johnston #2, Lower strip-mine area, 25 Sep 1983, *Utech 83-575*. — Adventive cultivar (Eurasia).

***P. virgatum* Linnaeus**
Switch grass
Upper strip-mine area, 13 Aug 1995, *Utech 95-824*. — Open, dry, sandy areas.

Paspalum

***P. setaceum* Michaux var. *muhlenbergii* (Nash) D. Banks**
(*P. ciliatifolium* Michaux)
Bead grass
3 mi S of Rector, Strip-mine area, 26 Sep 1964, *Henry s.n.* — Open, sandy areas.

Phalaris

***P. arundinacea* Linnaeus**
Reed canary-grass
Johnston #2, Lower strip-mine to Crisp Pond, 15 Jun 1980, *Utech 80-127*; Johnston #2, Lower strip-mine area, 15 Jun 1980, *Utech 81-127*. — Moist wooded stream banks (circumboreal).

Phleum

***P. pratense* Linnaeus**
Timothy
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-260*. — Agricultural cultivar; naturalized (Europe).

Poa

***P. alsodes* A. Gray**
Woodland bluegrass
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Moist woods.

***P. annua* Linnaeus**
Annual bluegrass; Speargrass
Cabin #2, 24 Apr 1993, *Utech 93-339*. — Lawns and open areas; naturalized (Eurasia).

***P. compressa* Linnaeus**
Canada bluegrass
3.5 mi S of Rector, 31 May 1958, *Henry s.n.*; Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-259*. — Naturalized (Europe).

***P. pratensis* Linnaeus**
Kentucky bluegrass
3.5 mi S of Rector, 31 May 1958, *Henry s.n.* — Meadows and lawns; naturalized (Europe).

Schizachyrium

***S. scoparium* (Michaux) Nash**
(*Andropogon scoparius* Michaux)
Little bluestem
Knupp #3, Friedline area, 6 Sep 1987, *Utech 87-877*. — Open, sandy areas.

Secale

***S. cerale* Linnaeus**
Rye
Knupp #3, Friedline area, 19 Jun 1994, *Utech 94-1159*. — Ruderal; adventive agricultural cultivar (Eurasia).

Setaria

***S. faberi* R. Herrmann**
Giant foxtail
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-346*. — Ruderal; naturalized (east Asia).

***S. glauca* (Linnaeus) P. Beauvois**
(*S. pumila* (Poiret) Schultes)
Yellow foxtail
Crisp Pond area, 6 Sep 1987, *Utech 87-885*. — Ruderal; naturalized (Europe).

***S. verticillata* (Linnaeus) P. Beauvois**
Bristly foxtail
Cabin #2, 29 Jul 1981, *Utech 81-391*. — Ruderal (Eurasia).

***S. viridis* (Linnaeus) P. Beauvois**
Green foxtail
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-346*. — Ruderal; naturalized (Eurasia).

Sorghastrum

***S. nutans* (Linnaeus) Nash**
Indian grass
Knupp #3, Friedline area, 14 Sep 1981, *Utech 81-415*. — Open, dry woods and fields.

Sorghum

***S. halepense* (Linnaeus) Persoon**
Johnson grass; Sorghum
Knupp #3, Friedline area, 31 Aug 1991, *Utech 91-1431*. — Adventive agricultural cultivar (Europe).

Sporobolus

***S. vaginiflorus* (Torrey ex A. Gray) A. Wood**
Poverty grass; Dropseed
Headquarters area, 6 Sep 1987, *Utech 87-887*. — Open, sandy areas.

Tridens

***T. flavus* (Linnaeus) A.S. Hitchcock**
(*Triodia flava* (Linnaeus) Smyth)
Purple-top
Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-556*. — Fields, roadsides, and open woods.

Triticum

***T. aestivum* Linnaeus**
Wheat
Johnston #4, Lower strip-mine area, 10 Jul 1994, *Utech 94-1426*. — Adventive agricultural cultivar (Eurasia).

Zea

***Z. mays* Linnaeus**
Corn; Maize
Knupp #3, Friedline area, 18 Sep 1992, *Utech 92-2101.* — Adventive agricultural cultivar (Central America).

Zoysia

***Z. japonica* Steudel**
Japanese lawngrass
Spoil bank, strip-mine area, 15 Jun 1966, *Henry s.n.* — Cultivated (east Asia).

Family Sparganiaceae

Sparganium

***S. americanum* Nuttall**
Bur-reed
3 mi S of Rector, 20 Jun 1957, *Henry s.n.*; 3 mi S of Rector, 12 Sep 1964, *Henry s.n.* — Swamps and ponds.

Family Typhaceae

Typha

***T. latifolia* Linnaeus**
Cat-tail
Fiorina #3, Crisp Pond area, 8 Aug 1983, *Utech & Ohara 83-516.* — Marshes and wet meadows.

Family Liliaceae

Allium

***A. canadense* Linnaeus**
Wild onion; Wild garlic
Raven's Roost area, 12 Jul 1982, *Utech 82-216*; Byers #1, Laurel Run area, 12 Jul 1982, *Utech 82-233.* — Open woods and meadows.

***A. schoenoprasum* Linnaeus**
Chives
Nature Center area, Herb Garden, 11 Jun 1994, *Utech 94-879.* — Cultivated (Eurasia; also native).

***A. tricoccum* Aiton**
Ramps; Wild leek
Moul Spring, 5 Jul 1981, *Utech 81-085.* — Rich woods.

***A. tuberosum* Linnaeus**
Garlic-chives
Nature Center area, Herb Garden, 5 Sep 1988, *Utech 88-1088.* — Cultivated (Europe).

***A. vineale* Linnaeus**
Field garlic; Scallions
Knupp #3, Friedline area, 11 Jul 1981, *Utech 81-230.* — Meadows and fields; naturalized (Europe).

Asparagus

***A. offinalis* Linnaeus**
Asparagus
Johnston #2, Lower strip-mine area, 25 Jul 1981, *Utech 81-348.* — Naturalized cultivar (Europe).

Clintonia

***C. borealis* (Aiton) Rafinesque**
Blue-bead lily; Yellow wood-lily; Yellow clintonia
Moul Spring area, 2 Jun 1995, *Utech 95-135.* — Rich, cool woods.

***C. umbellulata* (Michaux) Morong**
White wood-lily; White clintonia
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Calverley Lodge, 5 Jul 1981, *Utech 81-095.* — Rich, upland woods.

Convallaria

***C. majalis* Linnaeus**
Common lily-of-the-valley
Raven's Roost area, 12 May 1987, *Utech 87-065.* — Cultivated (Europe).

Erythronium

***E. americanum* Ker-Gawler**
Dog-tooth-violet; Trout-lily
4 mi S of Rector, 3 May 1956, *Henry s.n.*; Cabin #5, along Powdermill Run, 30 Apr 1983, *Utech & Ohara 83-151.* — Moist woods.

Hemerocallis

***H. fulva* (Linnaeus) Linnaeus**
Orange day-lily
Cabin #3, 30 Jun 1984, *Utech 84-451.* — Naturalized cultivar (east Asia).

***H. lilioasphodelus* Linnaeus**
(*H. flava* (Linnaeus) Linnaeus)
Yellow day-lily
Raven's Roost, 2 Jun 1995, *Utech 95-140.* — Naturalized cultivar (east Asia).

Hosta

***H. lancifolia* (Thunberg ex Houttuyn) Engelmann**
Plantain lily; Hosta
Coleman, Assembly Building area, 10 Sep 1988, *Utech 88-1096.* — Long-persisting cultivar (east Asia).

Hypoxis

***H. hirsuta* (Linnaeus) Coville**
Yellow star-grass
26 May 1975, *Leberman s.n.* — Open, dry woods.

Lilium

***L. canadense* Linnaeus**
Canada lily
Johnston #2, Lower strip-mine area, 2 Jul 1981, *Utech 81-005.* — Wet meadows and forest margins.

***L. superbum* Linnaeus**
Turk's-cap lily
Byers #1, Laurel Run area, 17 Jul 1981, *Utech 81-321.* — Wet meadows and low areas.

Maianthemum

***M. canadense* Desfontaines**
Canada mayflower; False lily-of-the-valley
Moul Spring, along Powdermill Run, 12 Jul 1982, *Utech 82-198.* — Moist woods.

Medeola

***M. virginiana* Linnaeus**
Indian cucumber-root
Moul Spring, along Powdermill Run, 2 Jul 1981, *Utech 81-012*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-287*; Friedline area, 29 May 1982, *Mulvihill & Leberman s.n.* — Rich woods.

Muscari

***M. botryoides* (Linnaeus) P. Miller**
Grape-hyacinth
Todd House area, 19 Apr 1992, *Utech 92-095.* — Long-persisting cultivar (Europe).

***M. comosum* (Linnaeus) P. Miller**
Raven's Roost, 16 May 1994, *Utech 94-303.* — Cultivated (Europe).

Narcissus

***N. pseudonarcissus* Linnaeus**
Daffodil
Todd House area, 19 Apr 1992, *Utech 92-094.* — Long-persisting cultivar (Europe).

Ornithogalum

***O. umbellatum* Linnaeus**
Star-of-Bethlehem; Nap-at-noon
Headquarters area, 21 May 1989, *Utech 89-181.* — Fields and roadsides; naturalized cultivar (Europe).

Polygonatum

***P. biflorum* (Walter) Elliott**
(*P. commutatum* (Roemer & Schultes) A. Dietrich; *P. canaliculatum* (Muhlenberg) Pursh)
Giant Solomon's-seal
Calverley Lodge, 3 Jul 1981, *Utech 81-055.* — Moist woods and thickets.

***P. pubescens* (Willdenow) Pursh**
Hairy Solomon's-seal
Calverley Lodge, 30 Jun 1991, *Utech 91-595.* — Moist woods and thickets.

Prosartes

***P. lanuginosa* (Michaux) D. Don**
(*Disporum lanuginosum* (Michaux) Nicholson)
Yellow mandarin; Fairy bells
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Patchell area, 11 May 1983, *Mulvihill & Leberman s.n.*; Johnston #1, Strip-mine area, 4 May 1985, *Thompson & Loughlin 2300.* — Rich, upland woods.

Scilla

***S. nonscripta* (Linnaeus) Hoffmannsegg & Link**
(*Endymion nonscripta* (Linnaeus) Garcke)
English bluebell
Headquarters area, 14 May 1992, *Utech 92-555.* — Long-persisting cultivar (Europe).

Smilacina

***S. racemosa* (Linnaeus) Desfontaines**
False Solomon's-seal
Byers #1, Laurel Run area, 5 Jul 1981, *Utech 81-141*; Calverley Lodge, 8 Aug 1983, *Utech & Ohara 83-524.* — Rich woods.

Trillium

***T. erectum* Linnaeus**
Red trillium; Ill-scented trillium; Stinking-Benjamin
Headquarters area, 9 May 1983, *Leberman s.n.*; Moul Spring, 28 Apr 1987, *Utech 87-008.* — Rich, moist woods.

***T. grandiflorum* (Michaux) Salisbury**
Wake-robin; White trillium; Large-flowered trillium
4 mi S of Rector, 3 May 1954, *Henry s.n.*; Cabin #4, 30 Apr 1983, *Utech & Ohara 83-152.* — Rich, moist woods.

***T. undulatum* Willdenow**
Painted trillium
4 mi S of Rector, 24 May 1956, *Henry s.n.*; Moul Spring, 26 Aug 1983, *Utech 83-538.* — Cool, moist woods.

Uvularia

***U. grandiflora* J.E. Smith**
Large-flowered bellwort
Moul Spring, 12 May 1987, *Utech 87-069.* — Rich, moist woods.

***U. perfoliata* Linnaeus**
Smooth bellwort
Cummings, Friedline area, 3 Jul 1991, *Utech 91-602.* — Moist woods.

***U. sessilifolia* Linnaeus**
Little merrybells
Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-288*; Calverley Lodge, 20 May 1992, *Utech, Kawano & Kudo 92-627.* — Woods.

Veratrum

***V. viride* Aiton**
False hellebore; Indian-poke
Nature Center to Cabin #5, 6 Sep 1987, *Utech 87-890C.* — Wooded swamps.

Family Iridaceae

Iris

***I. sibirica* Linnaeus**
Siberian iris
Nature Center area, Herb Garden, 11 Jun 1994, *Utech 94-878.* — Cultivated (east Asia).

Sisyrinchium

***S. angustifolium* P. Miller**
Blue-eyed-grass
Cabin #5, along Powdermill Run, 12 Jul 1981, *Utech 81-270.* — Meadows and open woods.

***S. atlanticum* E. Bicknell**
Blue-eyed-grass
Museum to Cabin #3, 12 Jul 1982, *Utech & Ohara 82-197.* — Meadows and open woods.

***S. montanum* Greene**
(*S. mucronatum* Michaux)
Blue-eyed-grass
Friedline area, 29 May 1982, *Leberman & Mulvihill s.n.* — Meadows and fields.

Family Agavaceae

Yucca

***Y. filamentosa* Linnaeus**
(*Y. flaccida* Haworth)
Adam's needle; Spanish bayonets
Raven's Roost, 16 Jun 1995, *Utech 95-158.* — Native cultivar.

Family Smilaceae

Smilax

***S. herbacea* Linnaeus**
Carrion-flower
Knupp #2, Laurel Run area, 28 Jul 1981, *Utech 81-386*; Byers #1, Laurel Run, 26 Aug 1984, *Thompson & Loughlin 1897*. — Open woods, thickets, and roadsides.

***S. rotundifolia* Linnaeus**
Catbrier; Greenbrier
Headquarters area, 10 Jul 1991, *Utech 91-709* — Open woods, thickets, and roadsides.

Family Dioscoreaceae

Dioscorea

***D. quaternata* (Walter) J.F. Gmelin**
Wild yam
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Byers #1, Laurel Run area, 13 Jul 1981, *Utech 81-293*. — Open, moist woods and thickets.

Family Orchidaceae

Cypridedium

***C. acaule* Aiton**
Pink moccasin-flower; Pink lady-slipper
4 mi S of Rector, 24 May 1956, *Henry s.n.* — Dry woods to swamps.

Epipactis

***E. helleborine* (Linnaeus) Crantz**
(*E. latifolia* (Linnaeus) Crantz)
Helleborine
Byers #1, Laurel Run area, 14 Jul 1981, *Utech 81-307*; Knupp #3, Friedline area, 26 Aug 1983, *Utech 83-549*. — Wooded roadsides; naturalized (Europe).

Goodyera

***G. pubescens* (Willdenow) R. Brown**
Rattlesnake-plantain
Byers #1, Laurel Run area, 24 Jul 1981, *Utech 81-328*; Byers #1, Laurel Run, 26 Aug 1983, *Thompson & Loughlin 1983*. — Dry woods.

Isotria

***I. verticillata* (Willdenow) Rafinesque**
Large whorled-pogonia
NW of Calverly Lodge along Powdermill Run, 24 Jun 1998, *Utech 98-044*. — Moist acid wood.

Orchis

***O. spectabilis* Linnaeus**
(*Galearis spectabilis* (Linnaeus) Rafinesque; *Galeorchis spectabilis* (Linnaeus) Rydberg)
Showy orchid
S of Manor Camp road, 16 May 1986, *Mulvihill & Leberman 3*. — Rich woods.

Platanthera

***P. clavellata* (Michaux) Linnaeus**
(*Habenaria clavellata* (Michaux) Sprengel)
Green wood orchid; Club-spurred orchid
Below Middle strip-mine area, 7 Sep 1975, *Leberman s.n.*; Below Middle strip-mine area, 27 Jul 1983, *Leberman s.n.* — Swamps and bogs.

***P. flava* (Linnaeus) Lindley var. *herbiola* (R. Brown) Luer**
(*Habenaria flava* (Linnaeus) R. Brown var. *herbiola* (R. Brown) Ames & Correll)
Pale green orchid; Tuberclad rein-orchid
Coleman tract, between Greensburg Hunt Club and Powdermill Run, 21 May 1996, *Leberman & Mulvihill s.n.* — Wet meadows and open woods.

***P. grandiflora* (Bigelow) Lindley**
(*Blephariglottis grandiflora* (Bigelow) Rydberg; *Habenaria psycodes* (Linnaeus) Sprengel var. *grandiflora* (Bigelow) A. Gray)
Purple fringed-orchid
3 mi S of Rector, 20 Jun 1957, *Henry s.n.* — Wet meadows and open woods.

***P. lacera* (Michaux) G. Don**
(*Blephariglottis lacera* (Michaux) Rydberg; *Habenaria lacera* (Michaux) Loddiges)
Ragged fringed-orchid
Johnston #4, Lower strip-mine area, 11 Jul 1981, *Utech 81-239*; Friedline fields, 14 Jul 1982, *Mulvihill s.n.* — Open, moist areas.

***P. orbiculata* (Pursh) Lindley**
(*Habenaria orbiculata* (Pursh) Torrey)
Round-leaved orchid
4 mi S of Rector, 11 Jul 1956, *Henry s.n.*; Lower strip-mine area, 16 Jun 1982, *Leberman & Mulvihill s.n.* — Moist woods.

Spiranthes

***S. cernua* (Linnaeus) L.C. Rich**
Nodding ladies'-tresses
Johnston #2, Lower strip-mine area, 18 Sep 1981, *Utech 81-510*. — Meadows and open, moist areas.

***S. lacera* (Rafinesque) Rafinesque**
Slender ladies'-tresses
S of Rector, 9 Sep 1967, *Leberman s.n.* — Open, dry areas.

***S. lucida* (H.H. Eaton) Ames**
Shining ladies'-tresses
Crisp Pond inlet, 3 Jun 1970, *Leberman s.n.* — Moist woods and marshes.

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